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CONTENTS

| | PAGE |
|---|------|
| Editorial Notes | 225 |
| United Nations Railway Training Centre in Pakistan | 227 |
| The U.S.A. Railway Wages Question | 227 |
| Problems of Anglo-Continental Traffic | 228 |
| Development of American Signalling | 228 |
| Locomotive Statistics | 229 |
| Letters to the Editor | 230 |
| The Scrap Heap | 231 |
| Overseas Railway Affairs | 232 |
| Remote Control of Points and Signals | 234 |
| Condensing Locomotives for South Africa | 237 |
| Scale Prevention and Sludge Removal | 241 |
| Arrival of New Locomotives for East African Railways & Harbours | 242 |
| Personal | 243 |

Finding the Money

THE additional burden now placed on the British Transport Commission of meeting the cost of the London Transport wage increase, of which some details are given on another page, shows how serious is the problem of finding the money to meet rises in wages and increased costs generally. The results of raising railway freight, dock, and canal charges 10 per cent on March 1 with some limitation in the case of merchandise by rail, so as to cover part of the cost of the British Railways wage award and also the higher cost of steel and other materials supplied to the railways, are only just beginning to declare themselves, as in dearer coal; but before long far-reaching effects on industry will be apparent, as in the increased production cost of goods for export. Of more immediate interest to the Commission is the possibility, by raising charges, of endangering the railways' position in competition with road transport for merchandise. The Commission, in seeking authority from the Minister of Transport to raise freight rates, stated that a contribution towards meeting higher costs would be required from passengers in the form of a reduction in poorly patronised services, and possibly by making selective increases in local fares, and referred to "reductions which will doubtless be required in long-distance main-line fares to meet the competition from express coaches." Any general

increase in long-distance railway fares, the Commission added, would "do serious damage to precisely those traffics which railways find profitable." The only transport charges which London Transport can increase are, virtually, passenger fares. The problem of competition with non-nationalised transport is less acute than with British Railways and the travelling public in and around London for geographical and other reasons is less capable than in the provinces of consumer resistance to higher fares, but such resistance has shown itself already in action to reduce expenditure on travel by seeking work nearer home in the suburbs or by going to live nearer in. London Transport, moreover, has its problem of off-peak travel, which it is trying to solve by special fare reductions. Closing the gap between receipts and expenditure is becoming progressively harder; and more than ever now depends on the economies in operation, such as are being sought in the discussions between the Commission and the railway trade unions.

Mr. William Lorimer

ELSEWHERE in this issue we record the death of Mr. William Lorimer, late Chairman of the North British Locomotive Co. Ltd. To the very large number of his friends this sad event will leave a void which even the most fragrant of memories can never hope to fill. He was a man of great mental and moral stature—an illustration of which was the manner in which he brushed aside the affliction of blindness and appeared to act as though oblivious of this burden. He had deep sympathy for others but asked none for himself. It was no easy task to follow his illustrious father (the late Sir William Lorimer, LL.D.) and to work beside that mercurial and irruptive genius, Sir Hugh Reid, D.L. His character and personality were, however, completely adequate and his service was of a quality which was an inspiration to those with whom he was in contact. He had an unperturbed calm, born of deep knowledge of both men and affairs; he was both logical and resolute; his rugged integrity was beyond question and his unswerving loyalties were overlaid with a grace, charm and personal modesty which will remain a treasured memory to those who were fortunate enough to experience the warmth of his personal friendship. Scotland has lost a great industrialist, the locomotive industry has lost a great personality, and the world has lost a great gentleman.

Canadian Rates Increase Refused

THE Board of Transport Commissioners has rejected an application by the Canadian railways for a 9 per cent increase in rates, which all provinces except Ontario and Quebec opposed. The Commissioners said that it could reasonably be expected that both railway management and labour, in their own long-term interests and in that of the public, might "collaborate in taking a new and economically realistic view of the deterioration that has taken place in the traffic position of Canadian railways." It is not so easy to define, however, what such a view might be. The Canadian railways have always been frank in setting forth their difficulties, particularly the vexed questions of rates and wage demands, one far from being confined to Canada. Mr. G. F. Buckingham, General Traffic Manager, Canadian Pacific Railway, said earlier this month that because of low earnings the railways were finding grave difficulty in attracting enough capital to enable them to meet the transport demands of the nation's expanding economy. The C.P.R. return on railway investment in 1953 was less than 3 per cent, a meagre inducement to the investor.

A £12,000,000 Plan for the Burma Railways

A RAILWAY rehabilitation programme to cost £12,330,000 has been announced by the Burmese Government, although no details have so far been given of the works which it is intended to finance. It will be remembered that Burma called for tenders sometime ago for diesel locomotives, but no orders are known to have been placed. Senior Burmese railway officers took part in

the inspection tour of British and Continental systems made by members of the Railway Sub-Committee of E.C.A.F.E. last autumn. In addition a Burmese purchasing mission was in this country earlier last year and visited the works of a number of manufacturers. It is to be hoped that in view of the programme now announced these visits may shortly result in orders being placed for a substantial quantity of the material which it may call for. The Burma Railways are fast making good the ravages of war and subsequent insurgent activity, but Burma intends with outside aid to raise considerably its productive capacity, and expansion of railway facilities is essential to this aim. The President of the Board of Trade announced on Tuesday that in agreement with the Burmese Government a delegation of prominent industrialists is to visit Burma next month to determine how Britain can best contribute to the country's general long-term development plans.

An American View on Transport

A RECENT American visitor to Europe and Britain on a study tour of transport systems, Mr. Robert J. Bayer, was entertained at the Transportation Club last week. Mr. Bayer had some cogent remarks to make to members about the transport systems not only in his own country, but also in Italy, Germany, France and Britain. As might be expected from one whose home is in the last great stronghold of private enterprise, he was not greatly impressed by nationalised transport. Mr. Bayer has done much to promote the interests of the American Society of Traffic & Transportation, of which he is President. This is a society designed to cater for the enhanced status of the industrial transport manager in the United States. His remarks on this subject are reproduced elsewhere in this issue. He showed that the peculiar problems arising from untrammelled competition among all forms of transport in America had brought into being not only a specialist in transportation as such but also an executive having a wide knowledge of business in order that he might discharge his essential function of obtaining the best uses of transport in distribution.

Modernising Southern Region Power Supply

THE Southern Region is making good progress with its £11,500,000 scheme to bring up to date the supply system in the whole of its electrified suburban area. Not only was the original power- and sub-station equipment, some dating from 1915, in need of replacement, but it had become necessary to provide both for the introduction later this year of ten-coach trains on the Eastern Section and for increased services in the future. It was decided therefore to change over from 25-cycle rotary converters to remotely-controlled substations supplied at 50 cycles, in conformity with the outer area electrification. There are 71 substations, 45 of them in new buildings, two in viaduct arches, and 24 in 25-cycle substations which are being adapted to take the new equipment. As much of the area is built up the siting of the new substations has often required much forethought and preparation and the civil engineering aspects of the project will absorb some £1,750,000. A measure of the extent of the scheme is that it is requiring the laying of some 300 feeder miles of oil-filled cables, the largest such installation in the world. The project is being carried out without interrupting the dense traffic of the suburban area.

A New World Speed Record

ONE of the Alstom-built Co-Co express electric locomotives of the French National Railways which are in regular service on the Paris-Dijon line has attained the record speed on rail of 243 km.p.h. (152 m.p.h.), hauling a test train of three coaches between Dijon and Beaune. The trials occupied three days; on the first the locomotive, No. 7121, reached 138 m.p.h. and on the second, 143 m.p.h. The object was to ascertain the maximum limits of speed and safety of locomotives, rolling stock and track on this line, which carries heavy, high-speed traffic. The French

have wrested the record from Germany, where it was set up in 1931 by a petrol-driven railcar, fitted with a propeller, which reached a speed of 143 m.p.h. Britain still retains what is probably the world record for steam, the 125 m.p.h. of *Mallard* hauling a seven-coach test train in 1938. No. 7121 is one of 53 locomotives of 4,800 h.p. supplied by Alstom and described in our February 20, 1953, issue.

Cab Signalling on Stockholm Underground

A GENERAL reference to the system of signalling adopted for the Stockholm underground appears elsewhere in this issue. Like that of London, the line has sections in the open. The severe climatic conditions sometimes experienced rendered it advisable to have no unnecessary moving equipment on the track and the well-known train stop was not favoured. It was decided to install continuous cab signalling without fixed signals, except at interlocking layouts with points and crossings to be protected. There ordinary colour-light signals are used, giving the running indications long standard in Sweden and a special calling-on aspect. The line is divided in halves, each controlled from a relay interlocking signalbox. Such working has been applied at a few places elsewhere and represents a highly scientific development. We have never seen any detailed explanation of how it could be adapted to the intense services carried by the London Underground lines with their many short track-circuit sections, nor do we know if any scheme to do so has ever been worked out. Anything of the type must necessitate signalling equipment on every motor coach and driving trailer, requiring to be kept in perfect order as any defect would give rise to considerable delays.

Thinking of a Train Ahead

THE collision near Forest Gate Junction on May 24, 1953, was a case of over-running a colour-light signal in perfectly clear weather. As will be seen from our summary of Colonel W. P. Reed's report elsewhere in this issue, the motorman had left Forest Gate with the starting signal at yellow. The one in advance was at that time approach controlled, as a crossover movement was in progress at the junction. The signalman was able to clear it, also to yellow, when the train was some 200 yd. from it, but the motorman, who had been accelerating normally, continued on at speed and, passing the actual signal protecting the junction, collided with a freight train at the diamond. As Colonel Reed remarks, he probably was running under the impression that the signals were clearing behind another train preceding him, and came to allow his attention to wander for a short interval, during which he ran by the red signal. It has been decided to shorten the approach controls on this route, which was re-signalled on electrification for a short headway service, to delay the clearing from red in similar circumstances until a train has approached considerably nearer to a signal, thus ensuring speed is reduced and preventing the impression that another train is receding at a usual distance in front. The type of A.T.C. with which the British Transport Commission is conducting trials, in the form proposed for multiple-aspect signals, would have been effective here.

North British Condensing Engines

IN 1950 Henschel & Sohn G.m.b.H. delivered a condensing tender to the South African Railways & Harbours, and as a result of successful trials orders were placed in 1951 for a number of condensing locomotives, described and illustrated elsewhere in this issue. It is reported that in the trials the condenser was able to cope with the exhaust steam at the highest capacity of the boiler which was 13,000 kg./hr. Under test it was found that the water consumption ranged from 7 to 13 per cent of that of a corresponding non-condensing locomotive working under the same conditions, depending on the steam leakage occurring, and giving a working range of 400-700 miles, varying with gradients and load. The saving in coal

ranged from 7 per cent at low firing rates to 16 at high firing rates. For the purposes of the trial the condensing tender was fitted to a South African Railways "20" class locomotive which has a tractive effort of 33,080 lb. at 75 per cent boiler pressure. The new condensing locomotives have a tractive effort of 45,360 lb. at 75 per cent boiler pressure, and weigh in working order 230.5 tons.

Commemorative Stamp Issues

ELSEWHERE in this issue appears a letter deploring the absence of a special issue of postage stamps marking the London session of the International Railway Congress in May. While sympathising with this view, the Government policy of opposition to special issues must be borne in mind. Only the most important occasions are so marked, examples having been the Silver Jubilee, Coronation years, the Second International Postal Union and the year the Olympic Games were held in Britain. Though there will be many who feel that the International Railway Congress is at least as important as the last two events, the general prejudice against the indiscriminate production of special issues must be considered. Some countries make a practice of raising money for their exchequers by issues of this kind, although exceptions occur when the stamps are produced to support charities. Another point presents itself. Great Britain was the birthplace of the postage stamp as well as of the railway: is a slight smug self-satisfaction apparent in our avoidance of scenic effects and so on in the traditional representation of the Sovereign's head which comprises almost the sole decoration of our postage stamps? We have been copied by the rest of the world in the stamp itself: should we now copy others whatever view may be held, the importance of the International Railway Congress being held in London for the first time in more than a quarter of a century merits special consideration.

United Nations Railway Training Centre in Pakistan

IN our February 12 issue reference was made to the modern signalling equipment to the value of £26,000 which is being jointly supplied by H.M. Government and United Kingdom manufacturers to the new United Nations Railway Training Centre now being established at Lahore, Pakistan. The site was chosen because of facilities provided by an already-existent Railway Training School. The equipment forms part of the United Kingdom contribution to the new enterprise, which is a joint venture by the United Nations Technical Assistance Administration and the Economic Commission for Asia & the Far East. Other participants in the scheme are the United States, France, the Netherlands and Japan.

Half the cost of the signalling equipment sent by the United Kingdom is being borne by the manufacturers and half by H.M. Government, under the Technical Co-Operation Scheme of the Colombo Plan. Britain is also providing the services of the Principal Lecturer for the Centre. Mr. E. A. Rogers, who is already at Lahore, has been temporarily released from his position of Deputy Chief Signal Engineer of the British Transport Commission for this purpose. The British contribution will include the bulk of the Centre's signalling equipment; it will comprise all forms of mechanical signalling apparatus; complete relay interlocking installation for a typical station (including colour-light signals and power-operated point machines); single and double line block instruments and level-crossing protection equipment. Supplies of other equipment, including batteries and cable, are under consideration by the Government.

The United Nations Technical Assistance Administration has entered into an agreement with the Government of Pakistan, which is providing the necessary new buildings, for the Centre to be administered by a Committee of Management to be recruited mainly from the countries of the region, but which will include United Nations officials.

The Centre will provide training in the operation of modern methods of train working, signalling and communications for junior executive officials. Students will be drawn from all countries having membership of E.C.A.F.E. Well over nine-tenths of all the railway systems of the Far East being composed of single-track lines, their capacity has been outstripped by the growth of traffic. Doubling of track imposes heavy financial burdens on the Governments of the respective countries concerned, and progress in this direction has inevitably been retarded. Through the installation of modern equipment and the introduction of advanced methods of working the capacity of the existing lines can be increased, and it is hoped that the modern training which will be provided at the new Centre will help to expand the capacity of these railway systems.

The U.S.A. Railway Wages Question

FOR many years the U.S.A. railways have sought to cultivate public goodwill by making the plain facts about their work and problems known without reserve. An offshoot of this policy was the establishment by the Eastern Railways of a Bureau of Information for disseminating advice about the railway position in its varying phases. The Chairman of the Executive Committee of the bureau is Mr. Harry E. Jones, who has been associated with movements affecting railway wages, working rules and analogous matters since 1910. Recently Mr. Jones turned his experience of staff questions to good account by compiling a survey of "Railroad Wages and Labor Relations, 1900-1952," which describes how the railwaymen's unions—often termed brotherhoods—succeeded in raising wages to exceedingly high levels and discusses the effect of the inflated costs of labour on the railway companies and on their stockholders. Mr. Jones has based his book on ample statistical data, some of the tables bearing unmistakably the hallmark of the Bureau of Railway Economics, Association of American Railroads, of which Mr. J. Elmer Monroe is Director.

Mr. Jones calculates that the railway payroll represents about 62 per cent of the total operating expenses of the U.S.A. railways. When the railways were prosperous in the year 1929, out of every dollar they earned 19.2 cents remained over operating costs and taxes to meet fixed charges and leave a reasonable return to the owning companies. In 1952 this balance was reduced to 10.2 cents, about 7.9 cents of the difference going in larger outpayments to labour. Though the railways benefited from increased freight rates effective in May, 1952, the rate of return on property investment in that year was only 4.16 per cent, an inadequate return for a period of general prosperity. The net railway operating income should represent a return of 6 per cent on net investment to encourage the companies to be enterprising and incur large capital expenditures on equipment and new works designed to improve efficiency.

A set of tables giving the average earnings of the principal grades of railwaymen from 1916 to 1952 offers a startling contrast to the standard of remuneration on British Railways. In 1952 road passenger engineers earned \$3.88 an hour and \$7,630 a year; road passenger firemen \$3.6 an hour and \$6,728 a year; passenger conductors, \$3 an hour and \$6,744 a year; baggagemen \$2.7 an hour and \$5,870 a year; brakemen and flagmen \$2.7 an hour and \$5,592 a year. As a rule the earnings of freight train crews are lower; on through trains engineers were paid an average amount of \$6,163 in 1952, while those on pick-up trains worked a good deal of overtime and earned no less than \$8,111. All these grades are paid more than the average salary of a district officer in this country and their working hours are short, judged by our standards.

These high wages account in a large measure for the annual deficit on U.S.A. passenger train services. Mr. Jones says that 17.1 cents out of every dollar of the 1952 gross passenger revenue went in wages to the train crews. Inevitably passenger train services have been withdrawn on a wholesale scale. The miles of road operated in passenger service were 171,600 in 1939 and 132,900 in 1952, a decrease

of 38,700 miles or 22 per cent. Over the same period the number of locomotives assigned to passenger service was reduced from 7,670 to 4,350, or by 40 per cent. Here is Mr. Jones's comment: "Today there is hardly any greater subject of complaint against the railroads, or any cause which more contributes to popular ill-will against them, than the drying-up of passenger service for countless communities scattered throughout the country which do not happen to be located on through arteries of railroad transportation." In his opinion the labour unions have pursued a shortsighted policy in pressing for too large and too rapid immediate gains. In self-defence the railways are taking drastic steps to reduce the number of employees, nearly 50,000 fewer being on the 1952 payroll. As for the railway stockholder, he has ceased to receive a normal rate of return on his investment and, "throughout the years, has become the forgotten man."

Problems of Anglo-Continental Traffic

THE lack of co-ordination between the railway-owned steamer services and the airways between Britain and countries across the North Sea and English Channel, and the so-called competition, which, he maintains, is not only unsound and unfair, but not true competition, are main points in the paper on the rail-sea-air problem of Continental services traffic read last week by Mr. R. E. Sinfield, Continental Superintendent, British Railways, Southern Region, to the Railway Students' Association. In the light of statistics of greatly increased air passenger traffic, of restricted travel currency allowances, and of the virtual disappearance of a leisured class with a taste for foreign travel, his statement is surprising that, by the end of 1951, the amount of traffic carried by surface routes to and from the Continent had reached 2,565,000, little less than the 1937 prewar peak of 2,633,000, considerably more than 1913—when there was no commercial air service or travel restriction, and a prosperous leisured class existed. These figures show the importance of holiday travel, and especially of the holiday traveller of modest means.

After pointing out the active steps taken by the railways before and after nationalisation to improve their passenger and freight services, the latter including such facilities as the Interfrigo service of refrigerator wagons by trainferries, Mr. Sinfield turns to the private motorcar and the motorcoach as they affect railway steamer services. The railways' attitude towards these, he states, has changed: now, whilst regretting the loss of railway receipts involved by the development of road transport, they "actively woo it from a Continental traffic point of view," and, as he shows, they have gone to great expense to provide suitably equipped vessels and port facilities for the increasing traffic, and the Continental railways themselves are participating in the motorcoach business with their Europabus services. Whatever problems were presented by the advent of the private car and motorcoach have been met by British Railways and their predecessors, the Southern and the London & North Eastern Railways, with a progressive attitude and, by taking a bold initiative, have been overcome.

In 1951, the record postwar year, the number of passengers by air services competing with British Railways marine services was some 1,000,000, or 40 per cent of the surface travel figure. At the same time, Mr. Sinfield points out, all traffics tend to rise, and, given peace, with the increasing development of paid holidays, and a rise in living standards, and bearing in mind that less than one in 20 British holidaymakers went abroad in 1951, the outlook for all forms of transport is not unhopeful. He gives, however, three reasons for disquiet as to the future of surface transport: a decline, because of a fall in the percentage of first and second class passengers by rail and steamer, in average receipts from passenger traffic; the rising costs of operating marine services; and the cutting of air fares. British Railways, he points out, are under the statutory obligation to pay their way, to do which they must take steps such as increasing rates to cover wage increases. The airways, particularly some foreign air undertakings, are prepared to incur deficits. British Railways, out of

their own resources, carry out their own research for development of the railway and steamship side of their business. Ships moreover are long-term assets, and represent a large capital tied up, with building prices four times prewar. The problem is aggravated by the very high standards, not only of safety, but also of luxury, set by British railway ships. Furthermore, the railways have inherited obsolete and inadequate port facilities, terminals and so on, which militate against satisfactory traffic handling, but would be very costly to rebuild. The airways enjoy various advantages in provision under Government auspices of airports; and they profit by the present strategic preoccupation with aviation, just as commercial air transport profited by developments in aviation during the last war—when the plant of the railways, though of not less strategic value, deteriorated.

Competition with the air on a fair basis, and co-ordination between rail and air of their respective commercial policies would lead to better service to the passenger, better financial results for the nationalised railways, and Mr. Sinfield thinks, savings to the British taxpayer. In service, the air has the advantage of speed, and also convenience in quick passage through Immigration and Customs formalities—though he is perhaps unduly modest as to the capacity of the railways and others concerned to handle large numbers efficiently at ports, which is by no means always equalled at airports at peak traffic periods. Surface transport has much to offer in comfort, and is certainly superior in reliability in bad weather. He is in favour of some agreement on fares between the two forms of transport, which would give scope for competition for traffic, and relieve the taxpayer from "subsidising a minority of the population who choose to travel by air." One advantage of such an agreement would be interavailability of air and surface transport tickets. On this point the views expressed by Lord Balfour of Inchrye at the Institute of Transport Anniversary Luncheon last November are apposite. The problem for the Government, and for the transport industry, he said, was to devise a system in which overall national policy was laid down by the Government, but with freedom from Whitehall control or restriction, and with the impetus of competition; and he regretted that nationalisation of the railways in 1945 had precluded a partnership of air and railway transport, whilst developments in the next 20 years would mean that surface could lend air transport the benefit of long experience.

Some form of agreement between the railways and the air will be achieved sooner or later, according to Mr. Sinfield; but even if such an understanding is delayed, he is not pessimistic as to the ability of British Railways Continental services to hold their own, given the very large potential travelling public still untapped, the still great appeal of surface transport to the holidaymaker, and the greater ability of the train and steamer services, in the present state of development of air transport, to handle peak traffics, the last a problem which sooner or later will have to be faced squarely by the air undertakings.

Development of American Signalling

FOR some time past there has been a noticeable tendency in American signalling development to extend the application of the latest types of equipment, not merely to obtain greater safety, for a long period the primary purpose of most of the extensions of automatic signalling, but also to effect a saving in operating costs, a necessity becoming ever more pressing since the rise of effectively competing methods of transport. The long stretches of single line, even more in evidence at one time than now, were not susceptible of being worked with the apparatus seen in this country, where conditions were totally different, and the timetable with a directing dispatcher issuing train orders to effect any necessary departure from the pre-arranged course of the traffic, was the only practicable alternative. It is to the credit of the American managements that they developed it to a high degree of perfection and elaborated a comprehensive code of rules, in force today over large mileages. The serious

results that could follow any mistake or carelessness were all along recognised, nevertheless many railways, by well enforced discipline and good training, succeeded in attaining an enviable safety record, with very little signalling as it would be understood in this country.

Telegraphic block working and later automatic signalling first found favour on the more crowded lines in the east and to some extent on single line sections in the south, through difficult country where there were numerous tunnels. Automatic signals eventually supplanted the manual block on the busy main-line sections. Their application to single lines offered special difficulties, but the fact that they gave guarantees against the consequences of any error in working the dispatching system gave them a strong appeal, and they began to spread rapidly in the first decade of the present century. An important step forward was realised with the invention of the so-called absolute permissive circuit, which enabled those in charge of a train waiting at a passing loop to know immediately an opposing one left the next. From then onwards progress was continuous and very large mileages are now protected in this way. The gain in safety was clearly reflected in the accident figures year by year. The next step was the introduction of centralised traffic control by which the dispatcher could assume the rôle of signalman over an extensive area. To the safety obtained already with the aid of track circuiting were added appreciable advantages in reductions in operating time due to train crews no longer having to set the points for themselves at passing loops. With suitable lengths of loop and careful action on the dispatcher's part non-stop crossing of trains could often be effected.

Of recent years, therefore, the emphasis has been on obtaining more flexible and economical operation by extending both automatic signalling and centralised traffic control, to improve the use of rolling stock and train crews and increase the benefits derived from the change to diesel locomotives, everywhere in evidence. With this have gone other improvements in the shape of more up-to-date signal boxes in interlocked areas, mechanised marshalling yard installations and a large application of radio communication for various purposes. Our contemporary *Railway Signaling & Communications* gives some figures, in which Canada is included, covering the signal engineering work carried out in 1953, marking an increase in activity, expected to become still greater during the present year.

Although the increase over the work done in 1952 was 4.4 per cent, measured in units to a recognised scale, some classes of signalling registered a decrease. Thus 967 automatic signals were installed as against 1,378 in the previous year, and fewer power points in yards and also retarders, but a considerable extension of these last two is expected in the current year. These reductions were offset, however, by work in other directions. New centralised traffic control installations included 1,845 semi-automatic and 956 automatic intermediate signals, with 680 power points, an increase over the previous record of 3,201 all told in 1947. New signal boxes and additions to existing ones embodied 1,983 power points and signals, a figure exceeded only twice in the preceding 11 years. The majority of these boxes were comparatively small, the largest comprising 64 signals and 48 points. The longest length of new C.T.C. covered 171 route miles. The total mileage involved was 1,839, all but 92 miles single line. One railway reported that on a length of 217 single route miles, on which the C.T.C. was completed through during 1953, a saving of one minute per mile for every through freight train was being obtained, of great importance on a 120-mile engine district. In certain instances again the new signalling has enabled the construction of additional tracks to be avoided and even a certain amount of double line to be singled without disadvantage. Sometimes on 3-track lines one track has been removed and the remaining two provided with reversible working, a process also applied to existing double lines in several places. One western line completed an 8-year programme covering nearly 750 miles of single line, a

remarkable piece of work. In some cases special turnouts are being put in to enable loops to be entered at 40 m.p.h. and additional signal aspects given so that drivers can maintain speed and avoid all unnecessary delay. The capacity of single lines has been raised in a marked degree by these methods, in certain cases up to 75 per cent of double, according to some statements.

Progress in the development of control and indication circuits, aided at times by electronic devices, has resulted in an extension of remote control and the grouping of interlocking areas under one signal box in a manner not thought practicable at one time. The panels used with these systems also have been developed in various forms, on the respective merits of which opinions differ. The lever type power frame appears to be seldom installed now in new work, although we believe that one large railway adheres to it. Some extension of automatic train control and cab signalling took place during the year and 1,491 level crossing warning installations were brought into service, an increase of 579 over the average for the previous 11 years. Of these, 1,112 comprised flashing lights only and 379 included some form of barrier equipment, provided where heavy road traffic is experienced. The controls used are frequently quite elaborate, to prevent the warning being given inconveniently long before the arrival of a slow-moving freight train, or difficulties arising in the neighbourhood of stations where a train may stop short of a crossing, or shunting movements require to be made. In many American cities the railway crosses a series of streets on the level and the provision of adequate protection is a costly matter.

Locomotive Statistics

(By a correspondent)

THE Association of American Railroads' monthly bulletins on the transport situation give in a clear form particulars of the locomotives used by U.S.A. Class 1 railways. The statement published on January 20 summed up the position at the end of 1953 on 130 railways operating 225,000 route miles and is worth reproducing as a model of concise tabulation.

| | Locomotives | | | |
|-----------------------------------|-------------|----------|--------|--------|
| | Steam | Electric | Diesel | Total |
| New installed— | | | | |
| December, 1953 | 1 | 0 | 119 | 120 |
| 12 months ended December 31, 1953 | 15 | 0 | 2,095 | 2,110 |
| 12 months ended December 31, 1952 | 19 | 2 | 3,044 | 3,065 |
| Retired— | | | | |
| December, 1953 | 268 | 13 | 5 | 286 |
| 12 months ended December 31, 1953 | 4,222 | 57 | 18 | 4,297 |
| 12 months ended December 31, 1952 | 5,316 | 26 | 59 | 5,401 |
| New on order— | | | | |
| January 1, 1954 | 1 | 10 | 649 | 660 |
| January 1, 1953 | 15 | 10 | 933 | 958 |
| Ownership— | | | | |
| January 1, 1954 | 11,696 | 607 | 16,371 | 28,674 |
| January 1, 1953 | 15,903 | 665 | 14,657 | 31,225 |
| Awaiting repairs— | | | | |
| January 1, 1954 | 1,232 | 21 | 262 | 1,515 |
| January 1, 1953 | 1,890 | 32 | 139 | 2,061 |
| Serviceable owned— | | | | |
| January 1, 1954 | 10,464 | 586 | 16,109 | 27,159 |
| January 1, 1953 | 14,013 | 633 | 14,518 | 29,164 |

The table shows diesels installed, retired and on order in terms of power units; ownership, under repair and serviceable figures represent complete locomotives as operated. With that explanation the statistics indicate that last year 2,077 diesel units replaced 4,207 steam locomotives, while the stock of complete locomotives was reduced by 2,551. Diesels constituted 59 per cent of the total stock, but the number of them under repair was only 17 per cent of the "bad order" figure for all locomotives. To be sure, nearly two-thirds of the diesels now in service were installed during the last five years, but the U.S.A. railways have had 20 years experience of the new motive power for main-line work and have proved it to be depend-

able and economical. By March of last year, 28 Class 1 railways operating 18,500 miles of road had substituted diesels for steam engines completely and other lines may be added soon to the "100 per cent diesel" list, as the full economy through the use of diesels cannot be secured when facilities are being maintained at the same time for keeping a shrivelling fleet of steam engines in traffic.

One virtue of the U.S.A. statistics is that month by month they show a gradual and logical approach to the end-of-the-year position. That cannot be said of the figures published recently in *Transport Statistics*. These show that on November 1 British Railways had 15,423

locomotives available for traffic; on November 29 the number was 15,420, but jumped to 15,757 on December 27 though the locomotive stock was worked very hard in November and the number of repairs carried out in December was abnormally low. Evidently the Christmas holidays upset the reckoning, as happened in 1952 when *Transport Statistics* said 15,853 engines were available at December 28 and the British Transport Commission's fifth annual report gave the number at December 31 at 15,572—a difference of 281. It is to be hoped that No. 1 of the 1954 series of *Transport Statistics* will give the real state of the locomotive stock at the beginning of the new year.

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

Driving Wheel Diameters

February 6

SIR,—It would be interesting to know why 5 ft. has been chosen as the wheel diameter for the driving wheels of the British Railways new class "9" heavy freight locomotives.

In previous designs, including the "austerity" 2-8-0s and 2-10-0s produced during the war, a diameter of 4 ft. 7 in. or 4 ft. 8 in. has been thought sufficient for heavy mineral engines. If this diameter had been used in the class "9", its tractive effort would have been increased to well over 40,000 lb. Alternatively, if the present tractive effort were considered sufficient, it could have been achieved with the smaller wheels by a lighter locomotive, with a lighter axle load and therefore a wider route availability.

Yours faithfully,

J. C. G. BROOKS

7, Dartmouth Park Road, N.W.5

[We are officially informed that the object of providing these locomotives with wheels larger than in many previous types is to help towards a better turn of speed where other factors allow. This is in accordance with British Railways general policy of accelerating freight train services and with the trials now in progress with continuous brakes on coal trains.—Ed., R.G.]

North London Suburban Railways

February 14

SIR,—The forthcoming closure of the Finsbury Park to Alexandra Palace branch and the decision not to electrify it, after £300,000 had been expended on the scheme before the war, is a further example of a suburban railway which could have played a most useful rôle in North London transport, but which has fallen into oblivion.

Although extensions of the Piccadilly and Northern Lines have improved travelling facilities over a wide area, little has been done these past 30 years to improve main line railway suburban services in North London. Unlike South London, the North has not benefited from any co-ordinated scheme to improve surface lines.

Foremost amongst improvement schemes for North London must be early electrification of the Chingford and Enfield Town branches, with a service frequency akin to that of the Liverpool Street to Shenfield service. Later, consideration should be given to electric services from Palace Gates to Liverpool Street, either via Hackney Downs or via Lea Bridge and Stratford. The Palace Gates branch, though little used at present, could become a most useful link between Wood Green, Tottenham, and the City and could relieve the Piccadilly Line. A steam shuttle service, connecting with the new electric services, could continue between Stratford and North Woolwich.

When the widening scheme between Potters Bar and New Barnet has been completed, electrification of the Eastern Region main line as far as Hitchin, and at a later date, the Hertford North branch, would be of inestimable benefit to regular travellers.

From the earliest days, electrified surface lines have proved their value and have been able to compete effectively with road services, as proved by the foresight shown by the former London, Brighton & South Coast, London & South Western, and London & North Western Railways in the London area, and in the provinces by the Lancashire & Yorkshire in the Liverpool and Manchester areas and by the North Eastern Railway on Tyneside.

Yours faithfully,

EDWARD TREBY

20, Ravensdale Avenue, North Finchley, London, N.12

Illustwating Railways

February 15

MY DEAR SIR,—Have you ever seriously considered how many countwies have expressed their satisfaction in their railway systems by suitably illustwating them, sometimes superbly, on their postage stamps?

Is there a countwy which has not? You cannot answer, and I will tell you, Sir. It is this countwy, where the railway was born.

And you tell me this, Sir. What, I say, what in this year of Gwace, 150th anniversawy of the first engine to wun on wails, and with an International Railway Congress on our doorstep, is the Government doing? What is the Post Office doing? What is the Minister of Twansport doing?

Absolutely sweet philatelic nothing, and it is absolutely sickening, Sir.

I am, Sir,

DISGUSTED

Tunbwidge Wells

U.S.A. Railway Recession

February 18

SIR,—Three news items from the U.S.A. confirm what was said in your February 5 article about the decline in business activity over there. First, the November statement of railway revenues and expenses showed a decrease in the month's operating revenues of \$75,652,000, or 8.3 per cent. Nearly \$67,600,000 of the decrease represented a drop of 8.8 per cent in freight revenue, while passenger revenue declined by \$3,259,000, or 5 per cent. Second, in mid-December, 1953, railway employees numbered 1,155,150, compared with 1,222,730 at mid-December, 1952, a reduction of 67,580, or 5.5 per cent. Third, railway wagon loadings for the four weeks to January 23 were 11 per cent below 1953.

This trend supports the latest pronouncement from economic advisers at Washington D.C. that the so-called "orderly adjustment of industry," which curtailed output this winter, is really a 10 per cent retrogression in general business. The outlook for the U.S.A. railways in 1954 is anything but bright at present.

Yours faithfully,

R. BELL

Frogнал, N.W.3

THE SCRAP HEAP

No State Monopoly

There are 190 privately-owned railways still in existence in Switzerland. Ninety-six per cent of all railways in Switzerland (including the Swiss Federal Railways) are operated electrically.—*From "Switzerland; Life and Activity."*

Blind to Changes of Fashion

According to a speaker at the annual dinner of the National Association of Window Blind Manufacturers, the style of blinds has changed with the times—except for those used in railway carriages.

"They have not altered since the beginning of the century," said Mr. Ben Hopkins, whose family have manufactured blinds for six generations.—*From the "Evening Standard."*

Last of the Canterbury & Whitstable

The illustration below shows track being lifted in Tyler Hill Tunnel on the former Canterbury & Whitstable Railway. Opened in 1830, the line was closed to all traffic as from December 1, 1952. The passenger service was withdrawn in 1930. After the floods at Whitstable in February of last year, the branch was reopened temporarily for freight transport, as an emergency measure. Dismantling, however, began last summer, and all track now is reported to have been lifted.

Tyler Hill Tunnel is among the oldest railway tunnels in the world. Although opened in 1830, the line through it was not steam worked until 1846, trains being worked by cable because of the steep gradient. The story that the tunnel was unnecessary, but demanded by the shareholders, is apocryphal. Its restricted dimensions, about 12 ft. x 12 ft., long necessitated motive power and rolling stock conforming to the re-

duced loading gauge, a factor contributing to the decision to close the line.

To lift the track in the tunnel, the contractors, George Cohen, Sons & Co. Ltd., used a lorry-mounted Jones KL 44 crane, fitted with a 50-ft. jib, which worked successfully in the confined space.

Owners' Rights

As the railways now belong to all of us we naturally take an owners' interest in them. Small boys take down the numbers of their own engines exclaiming delightedly while they lick their pencils. Old gentlemen glare their resentment when strangers enter their compartments, for how can a proprietor solve *The Times* crossword puzzle if he is elbowed by other proprietors to whom he has not even been introduced? And there are women who prefer to exercise their rights by sitting stiffly in those parts of the trains labelled "Ladies Only." The only privilege we owners of the railways do not have is the privilege of travelling on them for nothing.—*From "The Evening News."*

The Appeal of Steam

Diesel may be all very well for rolling roads and for all sorts of haulage, but it is steam which still tugs at the makers' heartstrings. It is steam which still has the gentle power to tear them apart.

Engineering executives and diesel directors are not the men of iron which you take them to be. They are just a set of sentimental old sillies who sit in their offices and gaze, moist-eyed, at faded photos of steam-ploughs, and play with a working model of *Puffing Billy*, which stands on their desks, and which they polish lovingly each day with their silk handkerchiefs.

Do you want to make a career in engineering? Then don't go up for an interview with references or with a lot of stupid certificates. Take a miniature railway and a sheaf of sobstuff with you.

Offer to play trains with the boss or read him an "Ode to George Stephenson." You are almost sure to be given the works.—*Bruce Blunt in the "Daily Express."*

Everyman's Author

During excavations for the railway at Tilbury in 1860, quantities of bricks and tiles were turned up on the site of a brickworks owned in the 1690s by Daniel Defoe some 20 years before he wrote "Robinson Crusoe." Mr. William Lee tells in his biography of Defoe how he visited the scene when the discoveries were made, and talked with the workmen. He asked several how they thought these things came there and was answered with an ignorant shake of the head; but when he said "These bricks and tiles were made 160 years since by the same man that made 'Robinson Crusoe,'" he "touched a chord that connected these railway navvies with the shipwrecked mariner . . . Every eye brightened, every tongue was ready to ask to give information and every fragment became interesting. Porters, inspector, and stationmaster soon gathered round me, wondering at what was deemed an important historical revelation."

Curious Epitaphs

We are indebted to Mr. J. W. Dedman, District Operating Superintendent, Cambridge, British Railways, Eastern Region, for the epitaph below, which is inscribed on a tomb in Ely Cathedral and is reminiscent of that reproduced in *The Scrap Heap* of January 22.

THE SPIRITUAL RAILWAY

The line to Heaven by Christ was made.
With heavenly truth and rails are laid
From earth to Heaven; the line extends
To life eternal where it ends.
Repentance is the station then,
Where passengers are taken in.
No fee for them is there to pay
For Jesus is Himself the way.
God's word is the first engineer;
It points the way to Heaven so clear;
Thro' tunnels dark and dreary here
It does the way to glory steer.
God's Love the fire, His truth the steam
Which drives the engine and the train.
All you who would to glory ride
Must come to Christ in Him.
(In 1st and 2nd and 3rd class) abide
Repentance, Faith and Holiness.
You must the way to glory gain
Or you with Christ will not remain.
Come then, poor sinners, now's the time
At any station on the line.
If you'll repent and turn from sin
The train will stop and take you in.



Lifting the track in Tyler Hill Tunnel, one of the oldest railway tunnels in the world, on the former Canterbury & Whitstable Railway, using a lorry-mounted crane

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

NEW ZEALAND

Tangiwai Deathroll

The Prime Minister has stated that the number who lost their lives in the Tangiwai disaster to the Wellington-Auckland express on Christmas Eve may total 149. He gave the following figures: number on train, 281; known to be safe, 132; apparent deaths, 149. One hundred and thirteen bodies were recovered and identified, and 17 recovered but not identified; 19 persons were not accounted for.

CEYLON

Royal Tour

When the Queen and the Duke of Edinburgh visit Ceylon in April they will travel by train over 35 per cent of the total railway route mileage. The Royal train is now being fitted up. The journeys contemplated are fairly short and will be done by day. Air-conditioned stock will be provided.

The Royal train will be hauled over main lines by diesel-electric locomotives recently supplied by Brush Bagnall and over branches by eight-coupled steam locomotives of the "A3" class.

Services Improved

The punctuality figures in 1953 show a distinct improvement compared with the previous year; the percentage of trains that ran to time or were less than ten minutes late was 80.

A new service came into operation on November 2. One important feature is that with the operation of the new locomotives obtained from the United Kingdom and by accelerations, the running times of all long-distance trains have been reduced by 30 to 60 minutes, as for example: Colombo-Talaimannar Pier (209 miles), reduced by 50 min.; Kankasanturai-Colombo (256 miles), by

60 min.; Colombo-Batticaloa (217 miles), by 30 min.; Colombo-Badulla (181 miles), by 50 min.

Suburban services have also been improved. Between Polgahawela and Panadura trains run at intervals of approximately ten minutes from 7 to 9 a.m. and 4 to 6 p.m., and the capacity of the line is used fully. Sleeping berths for passengers travelling second class on nights trains between Colombo and Bandarawela in the hill-country are now provided.

CANADA

Labrador Ore Railway

The General Manager of the Iron Ore Company of Canada has said that the Quebec North Shore & Labrador Railway from Seven Islands, Quebec, to Knob Lake, Labrador, will be completed by August. All but 20 miles of the 360 miles of track are laid. The railway was the subject of an article in our January 29 issue.

UNITED STATES

New 250-ton Capacity Wagons

Two more outsize flat wagons of 250-ton capacity will be placed in service in March by the Pennsylvania Railroad. They will have five times the carrying capacity of the normal wagon and are designed to transport unusually heavy machinery and assembled industrial units. Unlike the Pennsylvania's first "super" wagon, designed specially for outsize, extra-heavy loads requiring maximum overhead clearance, the new wagons will not have a well centre.

Each wagon will be 58 ft. long, weigh 638,800 lb. when loaded to capacity, and will run on 24 wheels arranged in four six-wheel bogies. They will have double installations of air brakes to

handle heavy loads safely. The Pennsylvania now has in service 325 flat wagons of unusual capacity or special design to transport extra heavy or outsize loads—approximately half the total number of this type of wagon in the country.

ARGENTINA

Mitre Railway Workshops

Improvements and additions to the value of 44,000,000 pesos are about to be undertaken in the Presidente Perón (formerly Gorton) works of the General Mitre Railway at Pérez, under the auspices of the second Five-Year Plan.

The scheme affects all the sections of the shops and their equipment, the most important being improvements in the foundry, boiler and paint shops. A completely new repair shop for diesel locomotives and trains will be provided at an approximate cost of 20,000,000 pesos. A large and modern dining hall will be built for the workmen and the existing hall will be converted into dressing rooms and baths for 2,500 men.

New Express to Mendoza

In connection with the "Feria de las Americas," an international exhibition being held in Mendoza until March, the General San Martín Railway has placed into service a new weekly express named "El Aconcagua" between Buenos Aires and Mendoza, covering the 1,063 km. in 13 hours at an overall speed of 82 km. p.h. The train is composed of six air-conditioned coaches lent by the General Roca Railway, which uses them on its "El Marplatense" express to Mar del Plata. A maximum of 172 passengers may be carried.

When the exhibition was inaugurated, two special excursions were organised, one steam-hauled and the other using a Ganz diesel set.

New Terminus at Lagos



Frontage (left) and platforms, showing baggage platform in centre, of new terminus at Iddo (Lagos), Nigerian Railway (see page 148 of our February 5 issue)

FRANCE

S.N.C.F. Assists Housing Drive

The housing shortage is felt particularly by the S.N.C.F., which cannot provide adequate accommodation at places where staff is most needed. At present, the greatest obstacle in the housing drive is the lack of skilled building operatives. The S.N.C.F. has therefore responded to the appeal by the Minister for Reconstruction & Housing to assist in the training of building workers, by providing their own training centres.

The sixth of these centres has been opened at Trappes. Similar centres already exist at Vaires, Arras, Tours, Dijon and Nîmes. The training at them covers three periods, one of theoretical and practical information, one of practical training on progressively more difficult training jobs, and finally one of active participation in building construction under the supervision of the instructors.

Armchair Seats in Converted Coaches

Since 1950 the S.N.C.F. has been experimenting with a new type of seating accommodation. Two express passenger coaches were then converted from ordinary compartments with a lateral corridor to vestibule coaches with a centre gangway. On each side of the gangway were installed in pairs armchair seats of a new type, which can be adjusted at will by the passenger to give various reclining positions, and can be rotated to

face the engine in whatever the direction of travel. Each seat has also an adjustable footrest. These coaches have been in service for some time between Dunkirk and Paris on the "Night Ferry" service.

It has been decided to extend this experiment and eighteen more coaches are being similarly treated; each will provide 56-60 second-class seats of this new type. Like the first two, they will be lit by fluorescent tubes with separate lights fixed underneath the lateral baggage racks, for each row of seats, and heated by forced air whose temperature is automatically controlled.

The coaches will be used on such journeys as Calais-Rome and Paris-Brussels. It is hoped that the first of them will be ready for service when the winter timetables are introduced on October 3.

Track Improvements at Paris Austerlitz

Consequent on the post-war decision to terminate main-line trains at Austerlitz station and run electric suburban services only through to Quai-d'Orsay, certain recommended track alterations were carried out at Austerlitz early last year. The work, which was intended to make possible higher speeds for suburban trains passing through the station and facilitate the working of empty stock, was carried out in two stages. The first stage involved modifications to the departure tracks, but the second, and most important, necessitated alterations to

points at the entrance to the station, including renewal of the ballast and the replacement of the control panel at Poste A by a more modern panel. The work, begun early in April, was completed by June 25 in time for last year's summer services.

HUNGARY

A 200-ton Weighing Machine

The weighing machine factory at Hódmezovásárhely has produced a machine to weigh 200-ton loads in wagons. It is required for the Sztálinváros Iron & Steel Works. The machine weighs 30 tons.

IRELAND

Claim for Wage Increase

A claim for a 12s. weekly increase in wages and reduction of the differential in wage levels in the various areas has been made on behalf of all Great Northern Railway conciliation grade employees in the Republic of Ireland rail services area.

The claim has been submitted by the Associated Society of Locomotive Engineers, the National Association of Transport Employees, the Irish Railwaymen's Union and the Irish Transport General Workers' Union. The unions and representatives of the G.N.R. Board have had conferences and the matter will be referred to the Board itself.

Publications Received

Railway Adventure. By L. T. C. Rolt. London: Constable & Co. Ltd., 10, Orange Street, W.C.2. 8½ in. × 5½ in. 176 pp. Price 21s.—This series of essentially human and amusing anecdotes outlines the history of the Tallylyn Railway, six miles long, in a valley under the shadow of Cader Idris in Merionethshire. The foreword by John Betjeman is typical of his wit. Interest in this little line centres chiefly in the fact that after 85 years' service, when threatened with closure, it was resuscitated by a small group of enthusiasts. Since then it has carried 20,000 passengers in a summer season. This is the railway that inspired the "Titfield Thunderbolt" film. Mr. Rolt graphically describes the birth and life of the line, which still persists as a private enterprise. He adds colour to his picture by his descriptions of the surrounding mountain scenery and local characters. The photographic and sketched illustrations are interesting. One of the original locomotives, 87-year-old *Dolgoch*, is still running.

1953 Illustrated: Dorman Long & Co. Ltd.—This illustrated booklet depicts the many activities of the firm during the past year, with some well-reproduced photographs. Sir Ellis Hunter, Chairman & Managing Director, states in the foreword that production of ingots

in the year ended October 3, 1953 (53 weeks) was a record in the history of the firm. The output of 1,759,079 tons was up by more than 120,000 tons. This creditable result was not effected by the starting of the Lackenby open hearth steelworks but reflects improvements effected at other works in recent years. Virtual completion of Stage II of the company's development project marks a big advance in plans to equip Dorman Long with the best production facilities available. Lackenby Works is expected to make a substantial contribution to output this year and prove a considerable asset to the national steelmaking resources.

Official Port of Bristol Handbook. 1954.—The new edition has been recast in many sections. The photographs reproduced were taken in the port during 1953, and depict, inter alia, some of the mechanical handling gear in regular operation, railways, including diesel traction, in the port, and export of railway material.

Holidays in Britain.—The holiday programmes of Thos. Cook & Son Ltd. ("Summer Holidays in the British Isles and "Tours in Great Britain & Ireland"), and of Dean & Dawson Limited ("Holidays in Great Britain & Ireland"), offer, at very reasonable prices, a great variety of seaside, island, and inland holidays in the British

Isles and Channel Islands, from John o' Groats to Jersey and from Cromer to Connemara. All manner of holidays are obtainable and the means of transport available include air travel.

Railway Cranes.—Breakdown cranes of lifting capacities up to 120 tons, including types for operating on electrified lines with overhead structures, are described briefly in a six-page folder of the Ardelwerke G.m.b.H., now centred at Wilhelmshaven, Germany, and which has been supplying cranes for railway work for over 50 years.

British Standard for Pipe Installations.

—A new British Standard No. 806, 1954 has been issued for ferrous pipes and installations in connection with land boilers. The new standard supersedes the 1952 edition, and applies to the design and construction of cold-drawn and hot finished seamless carbon steel pipes, hydraulic, roll lap-welded, and butt-welded carbon steel pipes, cold-drawn seamless, molybdenum and chromium molybdenum steel pipes. The standard applies to pipes of any bore where the pressure exceeds 50 lb./sq. in. and pipes over 10 in. bore for steam at pressures up to, and including 50 lb./sq. in. It can be obtained from the Sales Branch, British Standards House, 2, Park Street, London, W.1, price 10s. 6d.

Sixteenth International Railway Congress

Remote Control of Points and Signals: Design of Electric Point Mechanisms

Economic and engineering aspects of centralised and other forms of remote control: characteristics of electric point machines: trailability

THIS subject was reported on for the English speaking countries and Scandinavia and Finland by Mr. R. Sørvik, Chief Signal Engineer, Norwegian State Railways; the questionnaire issued was so extensive that it is very difficult to reduce the replies to a small compass.

In the case of the first section the principal replies came from the American lines, for on them C.T.C. has hitherto received its greatest application and there is considerable experience on which to draw. The chief reasons given by American managements for installing C.T.C. equipment are that it brings increased traffic capacity, effects economies in staff, often avoids having to lay down additional tracks and even permits of some being removed without detriment to train operation. By eliminating train orders any consequence of mistakes is removed.

The dispatcher is more quickly informed of any change in the position of trains than where he must depend on ordinary messages and is much better able to arrange meeting points between trains on single line and reduce delays. The points being power worked under his control, no time is lost by train crews having to deal with them. The reduction in stops so effected leads to less wear and tear of equipment, while there is less chance of accidents and personal injuries. Trains are kept in motion a greater portion of the time and the possibility of collision reduced. The use of signal indications to regulate all movements gets rid of mistakes due to the passing of instructions from one person to another.

Signals controlled by the dispatcher can be used in emergency to stop trains when information reaches him of anything unusual necessitating that. A higher standard of maintenance of points and sidings has been found to follow, which itself increases safety. Workmen's motor cars and other equipment can be better protected, as the dispatcher can make sure that this is done effectively. With less standing time there is smaller chance of trains becoming "frozen" in severe weather. The availability of locomotives and rolling stock and staff is greatly improved, which again cuts down operating costs.

C.T.C. In Action

The traffic dealt with on lines equipped with C.T.C. varies a great deal. One line in Rhodesia has 12 trains each way daily. In New Zealand the figures are 20, 27 and 38 for the three sections concerned. In U.S.A., at the beginning of 1952, 81 managements had

installed such apparatus and it is estimated that 30,000 trains daily are so regulated, but traffic on the individual sections varies considerably. One busy section of single line connecting two double line sections carries at times as many as 84 trains per day, some more than 100 cars long.

Remote Control

Remote control, as distinct from C.T.C. proper, had been applied to 816 power interlocking installations in U.S.A. at the beginning of 1952. There are 844 C.T.C. machines in service there, controlling 7,716 points directly and 5,630 through electric locks and manual operation. Sections up to considerable length are controlled from one machine, in some cases up to 100 miles and more. Total route mileage C.T.C. controlled in America was given as 15,543.

The actual method of effecting the control varies with circumstances. Up to a certain distance from the machine d.c. codes are used, the mileage depending on the number of locations and physical conditions of the transmission line. Beyond that carrier currents are used, super-imposed on the same transmission line converted at the beginning of a section into d.c. codes, each having its own carrier frequency.

The tendency is to centralise the operation of C.T.C. in headquarters, to obtain co-operation between different dispatchers. In that case the territory controlled by a machine may not begin for as much as 100 miles away. On double and multiple track lines, on which there is some C.T.C., the direction of running often is made reversible to give the maximum user of available tracks. It is customary to repeat to the machine the stop indications of any absolute block signals but not those of any intermediate permissive ones. In Rhodesia there are no automatic signals in C.T.C. installations. Signals governing movements over points are absolute in character.

Although certain installations do in fact have a limitation on the number of stations that can be controlled by a machine it is reported from America that the restriction is an economic one, and that technically there is no difficulty in controlling any number of locations. Up to 824 miles distance has been brought within the action of one machine.

Various systems of codes are used with relay chains. The actual interlocking is realised at the local layout but there can be some also at the central machine, if required. Shunt movements at stations are dealt with usually by the

train crews themselves. The position of points is indicated at the central machine and should any be trailed through, or otherwise disturbed, that is immediately made known.

Wiring and Cabling

The type of wiring or cabling used for the controlling circuits also varies. One pair of wires is often made to carry a considerable number of controls of various forms. Lightning protection is generally provided but the arrangements are always such that atmospheric effects cannot give rise to false operation of apparatus. As a rule provision is made for storing controls and return indications, so that they are transmitted in due order as the line circuits become free. Several designs of relay are in use, mostly of the improved telephone type.

Points which are locked locally electrically are released on request from the central machine. With purely hand operation permission has to be obtained by telephone. In America gas or electric heaters are used to prevent immobilisation in severe weather. The number of failures with these systems is stated to be very few, but emergency arrangements have to be made to meet certain cases, such as line circuit failures, when points must be hand operated and stop signals passed under orders. Time releases are used in connection with approach locking. Any failure must be notified as quickly as possible to maintenance staff. Graphic pen recorders are very generally used to keep an exact record of traffic movements. No management covered by this report has means of indicating automatically on the track diagram the train time table number, proceeding from section to section. Maintenance organisations vary according to the conditions and in Rhodesia staff have road transport facilities given to them.

Electric Point Operation

As regards electric point operation practice varies. Scandinavia has the local hook type locking on all points but other countries never do so and apply locking only to facing points. In some cases this is incorporated in the point machine. In Sweden, when speed over them exceeds a certain figure, there is additional electric bolt locking. Trailable points are used regularly in some European countries and spring returned points frequently in America.

The exact arrangements used for detecting the point tongues and condition of the locking mechanism varies according to the style of equipment, but essen-

tial principles are everywhere the same. Marshalling yard points usually are trailable without locking devices. In America ordinary points when closed must withstand a force of 20,000 lb. on the operating or locking connection.

In other countries the retaining force is considerably less but can reach 1,100 lb. In marshalling yards special quick acting point machines are used operating in about 0.5 sec. Except in America no difference is made in the type of actuation for pivoted or heel-less tongues. Both a.c. and d.c. are used for the machines, of varying voltages. Circuits used depend on practice in vogue in a given country. Motors are always reversible and worm, spur wheel and rack and pinion drives are met with. Some countries have means of operating points locally with the remote control cut out and emergency hand operation available in case of power breakdown. The amount of time required to maintain motor points is variously estimated and reported as 25 man-days per machine per annum in Ceylon and five in Sweden.

Full trailability under which points remain in the other position when run through, but are undamaged, is used regularly in Scandinavia, but elsewhere only in marshalling yards. In Scandinavia point tongues move independently and are not connected rigidly. Trailing, however, is not normally permitted and when it does occur is indicated in the signal box or at the remote control machine.

Remote Control of Signalboxes

Mr. Sorvik considers remote control of signalboxes to be the most important section of his report. Practice shows it to be better, safer and more economical to use such apparatus, if its cost is reasonable, than to rely on manual operation. C.T.C. has proved to be so reliable in the U.S.A. that it is being installed on a large scale, but in Europe, where more staff is available at stations, able to handle the train signalling, there is not the same benefit to be derived by putting in C.T.C. British Railways informed Mr. Sorvik that their view was that it was more suitable generally

where traffic was controlled by a dispatcher and its development had necessitated more extensive signalling being adopted. In such cases financial justification could be made out, but in Great Britain up to the present, it had not been possible to make a case in favour of C.T.C. The signalling staff that it might displace had to be retained for other duties which the system would not eliminate.

The subject of electric point operation is of less importance, this reporter considers, although offering a number of technical problems. A long experience is available already, however, and the differing methods met with of operating and detecting point machines have come into existence as a result of the conditions obtaining in the various countries, with the different operating rules in force there. For example, where shunting movements are not signalled, as they are in Great Britain, the risks of points being run through are great enough to justify making them generally trailable. Elsewhere simpler designs of point machine will suffice.

Cab Signalling on Stockholm Underground

*Adopted in place of train stop system
in view of Swedish climatic conditions*

IN view of the great incidence of snow and ice conditions it was thought inadvisable to have a train stop system as used on the London Underground for the new Stockholm underground system, parts of which run in the open. It was accordingly decided to use a continuous cab signal system operated in conjunction with track circuiting throughout and to dispense with fixed signals except where there are points and crossings, and it is necessary to indicate the exact spot where a train must stop to be clear of such and of other train movements over them. This eliminates all moving parts on the track except those associated with the operation of points, and simplifies the maintenance.

The control of interlocking areas is centralised in two signalboxes only, one at Alvik in the west, the other at Johanneshov in the south. This arrangement gives continuity of signal indication to the motorman, independent of visibility conditions, and increases the flexibility of operations, as trains are able to run more closely to one another without risk. The centralising of the signalbox controls has resulted in a saving in staff and a more general supervision over a complete half of the system.

The cab signals have three aspects, "high" (H), 70 Km.p.h. (44 m.p.h.); "medium" (M), 50 Km.p.h. (31 m.p.h.); and "low" (L), 15 Km.p.h. (9½ m.p.h.). The first corresponds to the greatest speed the trains can attain and the

"medium" figure was selected as corresponding to half the braking distance at maximum speed. The low speed is the lowest compatible with steady movement of a train. Normally, through the action of coded track circuits, the "H" indication is showing, but when an obstacle is approached, or a fixed signal ahead is at danger, it changes to "M" and then to "L" as the track sections are passed over.

If the appropriate speed limit is irregularly exceeded or a cab indication changes to something lower, "H" to "M," for example, a buzzer sounds with a bell in addition, if the change is from "M" to "L." The driver must switch off and brake within 2½ sec. or an emergency brake action follows. The train can proceed again after a wait of 20 sec. up to the speed limit authorised by the cab indication. The speed control is effected by axle-driven governors. The track circuits are 75-cycle a.c. with impedance bonds and the traction is d.c. The coded current impulses are picked up by receiver coils carried ahead of the front axle and decoded through a filter and decoding transformer. The "H" indication is given by 180 and the "M" by 75 impulses per minute, and the "L" by steady current, or absence of current.

Fixed Signal Indications

The fixed signals at junctions, and so on, show red for "stop" and one, two or three green lights for "proceed," as

usual in Sweden, according to route, with red over yellow for permissive "call on." Each signalbox has a lower relay room and the operating portion has an illuminated diagram panel, depicting half the line, a train movement being signalled by route setting under the operation of two push buttons marking the beginning and end of the movement. Normally there is no individual operation of points or signals.

The first section of the system was put into operation 2½ years ago and on the western part of the line six months ago. Very few failures have been recorded. It is thought that in the end the maintenance staff will not need to be more than 75 per cent of that required for a system using signals and train stops, and that the first cost of an installation should be from 10 to 15 per cent cheaper.

RECORD STEEL MOVEMENT BY NORTH EASTERN REGION.—The highest quantity of steel carried by the North Eastern Region of British Railways in any year since the war was moved in 1953, when 2,568,000 tons were moved from principal steelworks in the North East. The total tonnage of freight, coal, coke and steel carried by the North Eastern Region last year was 64,823,000; of which 45,518,000 was coal and coke. In the week ending January 30 as much as 56,746 tons of steel was consigned, the highest figure for several months for the North East.

Condensing Locomotives for South Africa

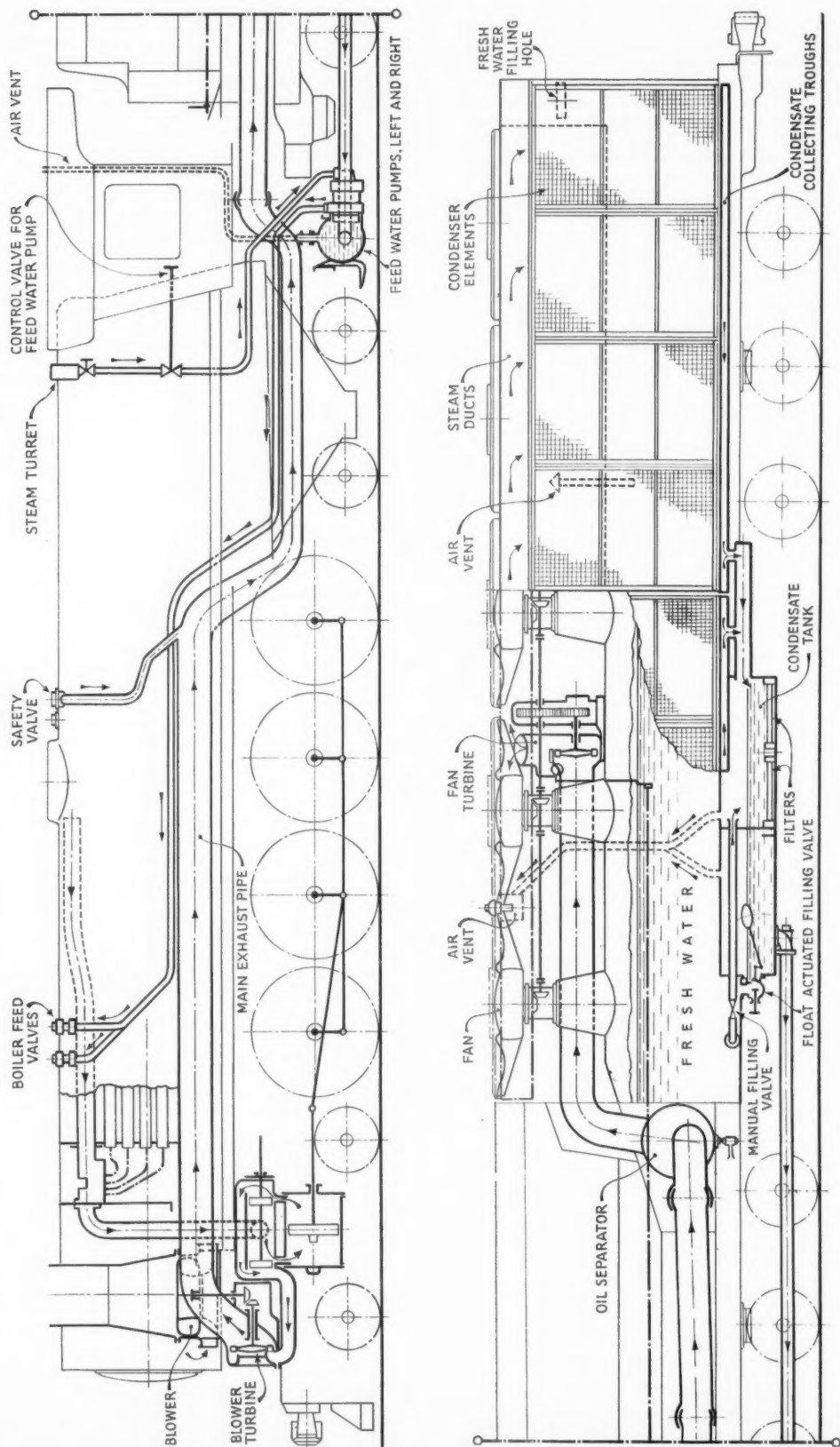


Diagram showing sequence of process of condensation and location of condensing equipment, including blower and blower turbine in engine, and oil separator, fan turbine, and condenser elements in tender

Condensing Locomotives for South Africa

Class "25" locomotives with a total weight in working order of 230.5 tons

THE South African Railways & Harbours Administration in 1951 placed orders for the supply of 50 class "25NC" non-condensing locomotives and 90 class "25" condensing locomotives. Both classes are of the 4-8-4 wheel arrangement.

The North British Locomotive Co. Ltd. received a contract for ten of the non-condensing type, the 90 condensing locomotives and 30 of the condensing tenders. Henschel & Sohn, G.m.b.H., were given the contract for 40 non-condensing type and 60 condensing tenders. The locomotives are being built to the specification and requirements of the Mechanical Department of the South African Railways and under the supervision of the Advisory Engineer, High Commissioner's Office, London.

The design work on this contract has involved the closest collaboration between the British and German locomotive firms and a satisfactory working arrangement was arrived at which permitted the detail design of the condensing and non-condensing locomotives to go forward at the same time.

Both the North British Locomotive Co. Ltd. and Henschel & Sohn have completed delivery of the non-condensing locomotives, which are identical with the condensing locomotives, as described in this article, with the exception of minor modifications required to accommodate the condensing equipment.

A considerable number of the condensing type have also been delivered by the manufacturers to the South African Railways.

Heating Surface

The boiler barrel, which is 22 ft. 8 in. long, consists of three rings, the middle ring being tapered. The barrel diameters are 6 ft. 5½ in. at the front and 7 ft. at the rear, and accommodates 158 tubes of 2½ in. outside diameter and 40 superheater flue tubes of 5½ in. outside diameter. The distance between the tubeplates has been reduced from 22 ft. 6 in. in the "15F" class to 19 ft. by the use of a combustion chamber.

While this arrangement results in a slight decrease in the total evaporative heating surface, there is a 40 per cent

increase in the relatively more valuable firebox heating surface and a better ratio of firebox to grate area.

Firebox Volume

There are several innovations in the boiler design compared with previous S.A.R. practice. The round top outer firebox is welded completely; the wrapper plate being in three pieces with the top plate thicker than the sides. The throat plate and firebox back plate are welded to the wrapper plate while the connection to the barrel is made by a double riveted joint with a row of partly rigid and partly flexible stays interposed between the rivets.

The all-welded inner firebox incorporates another new feature in the use of circulating tubes in place of the more conventional arch tubes. These circulating tubes are now being manufactured in this country by the North British Locomotive Company and take the form of an inverted tee connecting the firebox roof to the side legs. Four rows are arranged in the firebox and give added circulation as well as providing adequate support for the brick arch.

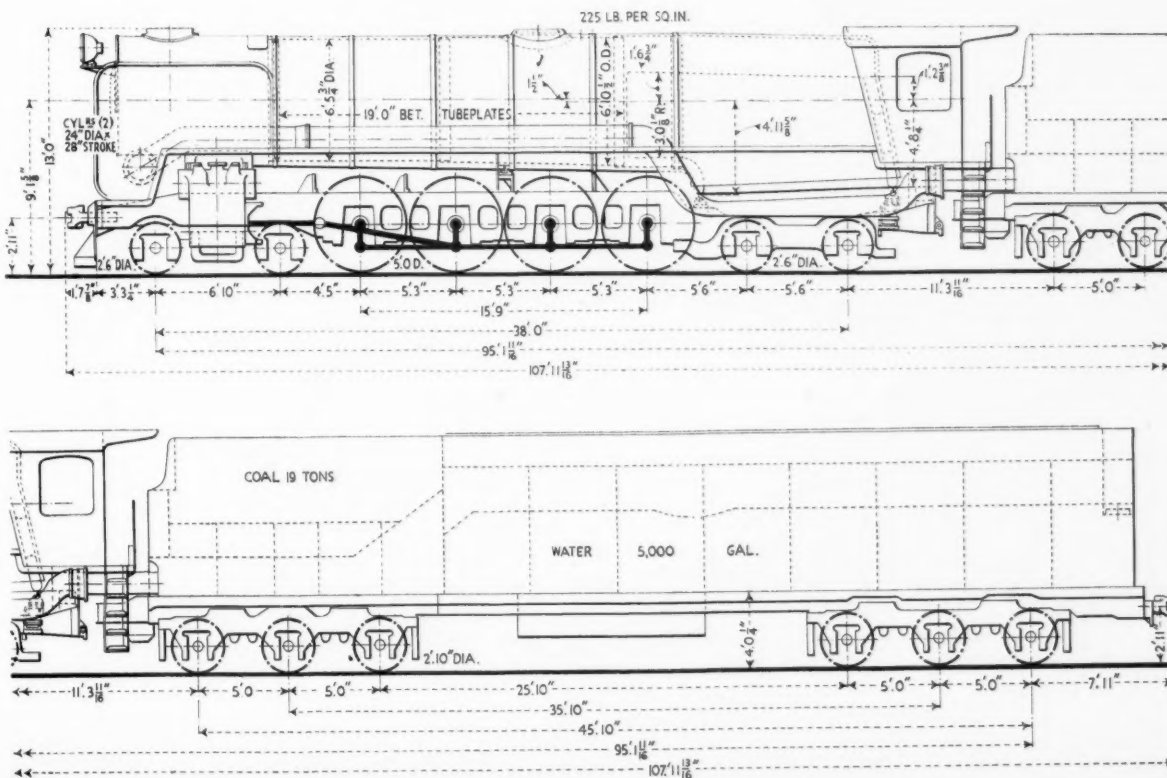
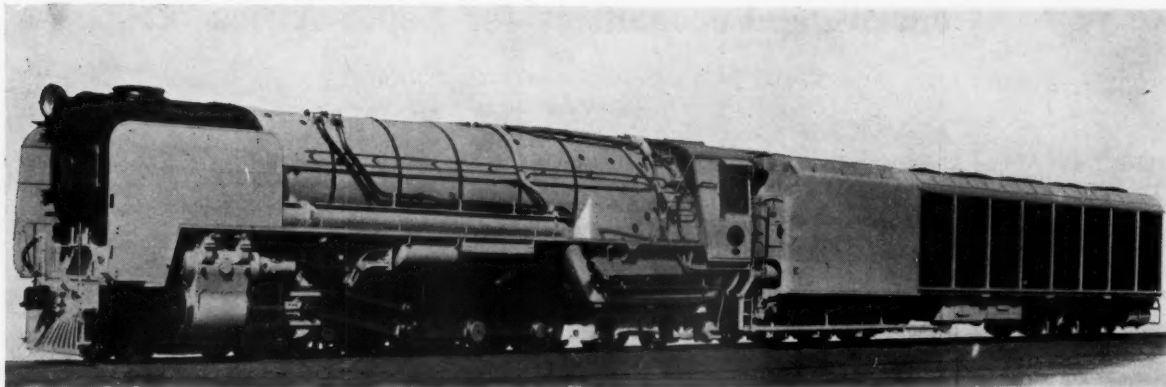


Diagram showing principal dimensions of engine and tender



South African Railways Class "25" condensing locomotive of 45,360 lb. tractive effort

The inner and outer fireboxes are welded to a foundation ring of U section pressed steel plate, of the type first introduced in this country on the former Southern Railway and permits the provision of a water leg 6 in. in width. Extensive use is made of flexible stays. The first three rows of roof stays, the areas in the vicinity of the circulating tubes, the major portion of the combustion chamber and large sections of the firebox sides and back are fitted with flexible stays. Colvilles Double Crown staybolt steel is used for all stays. Firebox cross stays have been dispensed with, an

bottom sliding door. The ashpan drench is taken from one of the boiler blowdown cocks, with an alternative connection on the non-condensing engines only to one injector delivery pipe. The discharge from various small drains is collected in a main collector pipe also discharging into the ashpan.

Centrifugal Blower

The smokebox of the condensing locomotive is similar to that of the non-condensing type with the front extended to accommodate the vertically disposed centrifugal blower which is driven through bevel gears by an ex-

haust steam turbine mounted under the front of the smokebox. The smokebox front plate, in addition to being bolted to the angle ring, is also hinged to the wrapper plate, thus facilitating access to the blower equipment, also attention to superheater header and tubes.

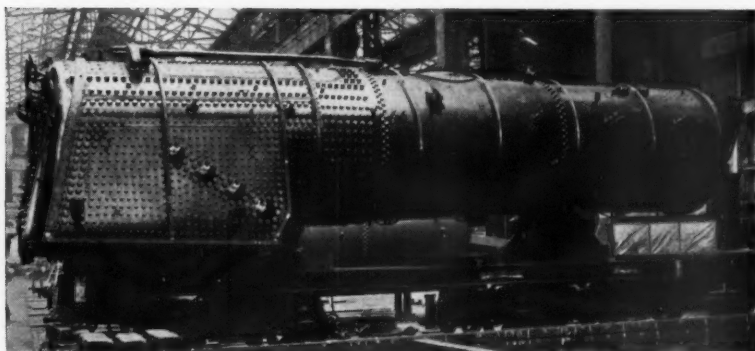
The auxiliaries draw their steam from two steam turrets which are fed with saturated steam by external piping from two shut down valves all located on top of the boiler barrel. Considerable thought was given to the arrangement of mountings on the firebox back. A full size mock-up of the cab was built by the North British Locomotive Co. Ltd. before final settlement of the positions.

Main Frames

The main frames are one-piece steel castings with cylinders, including hind cylinder covers, and front buffer beam cast integral. The castings were supplied by General Steel Castings Corporation of America and the approximate weight of the finished casting is 18 tons. The frame was designed in close collaboration with the builders to specified weight limits and for weight distribution purposes the centre of gravity was held within a small dimensional range.

The coupled axleboxes are of the cannon type with British Timken roller bearings. Franklin compensator and snubbers with compensator wedges of cast steel faced with bronze are fitted to the horn gaps. Overhung coupled bearing springs are provided and are fully compensated, forming a group with the trailing bogie. The frames for both the leading and trailing four-wheel bogies are one piece steel castings which are also manufactured by the General Steel Castings Corporation. British Timken roller-bearing axleboxes are fitted, those for the leading bogie being of the cannon type.

The side control devices are of the constant resistance type, supplied with



Boiler and firebox assembly for the condensing locomotive

additional row of radial stays being fitted on either side.

Gusset stays are provided at the firebox back and smokebox tubeplates. These stays are arranged vertically to overcome cracking experienced with horizontally disposed gussets on previous locomotives. The dimensions of the firebox are 10 ft. long by 7 ft. 0½ in. wide inside, and in view of these proportions a fabricated cross stay is secured to the underside of the foundation ring midway along its length. This cross stay also provides a support for the firebar bearers.

The firegrate consists of four groups of rocking bars actuated by steam power and two dumping sections. The air opening provided is 28 per cent of the grate area. The ashpan, which is carried on the main frames, has a

haust steam turbine mounted under the front of the smokebox. The smokebox front plate, in addition to being bolted to the angle ring, is also hinged to the wrapper plate, thus facilitating access to the blower equipment, also attention to superheater header and tubes.

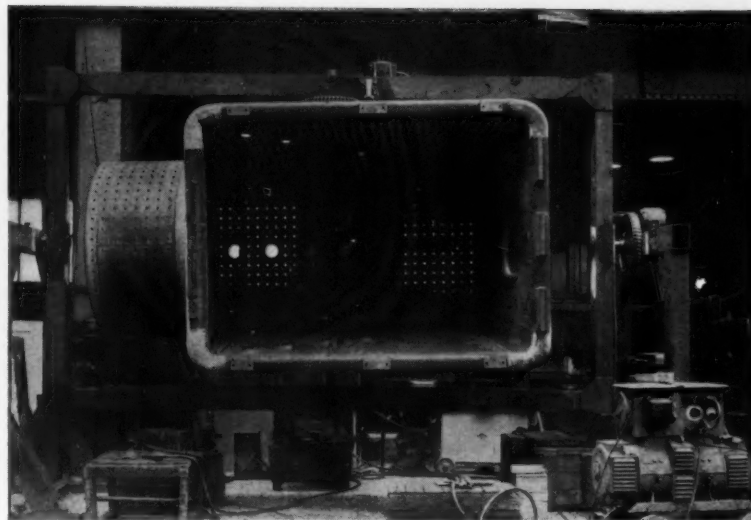
The superheater, which is common to both types, is of the Melesco multi-valve type incorporating 40 elements. In an endeavour to eliminate trouble experienced with cracked headers the header is carried from the smokebox tubeplate flange instead of the wrapper, as is the usual practice. The boiler and cylinders are lagged with Cape Asbestos mattresses, the boiler mattresses being manufactured and fitted in South Africa.

As the temperature of the feed water

the frames, and the side play permits the locomotive to negotiate curves of 275 ft. radius with $\frac{1}{4}$ -in. gauge widening and $4\frac{1}{2}$ -in. superelevation. The wheels, axles and axleboxes of the leading bogie are designed to be interchangeable with those of the S.A.R. existing "15F" class, while the wheels and axles of the trailing bogie are interchangeable with those of the Railway's "24" class bogie.

The cylinders are fitted with renewable cast-iron liners in the barrels and steam chests. In addition to S.A.R. standard by-pass, drain and drifting valves, a diaphragm type cylinder pressure release safety device is fitted. A steam chest pressure gauge with anti-pulsation device is also included as part of the equipment. The pistons and piston valve heads are drop forging of 40-45 tons steel and are fitted with Koppers segmental piston and valve rings. The ring grooves of both pistons and valve heads are flame hardened as are the wearing surfaces of the slidebars and reversing links. Paxton Mitchell metallic packing is fitted to the piston rods.

The split crossheads are of the Alligator type with cast-iron slippers and are fixed to the piston rod by a triple-coned ring fastening. The hollow bored gudgeon pin is carried in taper roller bearings. Oil lubrication to the roller bearings is provided through the hollow pin. Walschaerts valve gear operates the 12-in. diameter piston valves which have a maximum travel of $7\frac{1}{2}$ in. The reversing gear is of the Hadfield power-operated type. Skefko roller bearings are fitted to the eccentric crank and the remainder of the motion pins are of the double taper



Inner firebox being welded on a manipulator

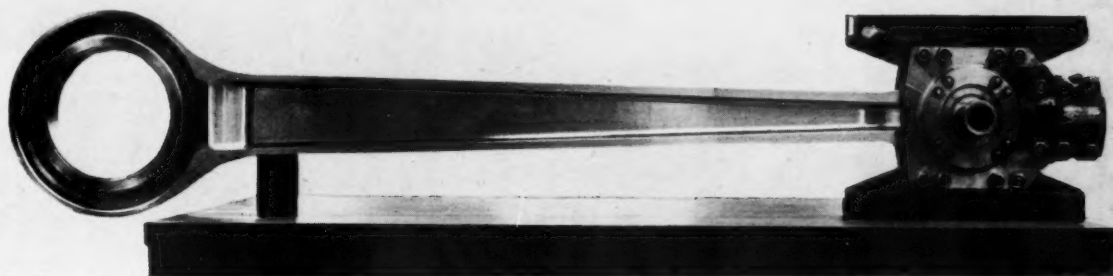
molybdenum steel. The flanks of the rod eyes are cold-rolled, as are also the coupled axles, crankpins and wheel seats.

A departure from the S.A.R. previous practice has been the adoption of mechanical lubrication. A 16-feed lubricator is driven off the reversing link trunnion, a roller bearing being fitted at the driving end while an Andre Neidhart rubber connection is employed at the driving arm of the lubricator. The non-condensing engines are fitted with Wakefield and the condensing engines with Davies & Metcalfe components. Vacuum brake

cation of the locomotive and tender brakes until a predetermined degree of braking has been established throughout the train.

The separate driver's brake valve has an isolating valve attached which permits the engine and tender brakes to be held "on" while the train brakes are being released or vacuum built up. Sanding is provided to the front of the leading coupled wheels only, the gear being hand operated from the cab.

Automatic couplers of the Alliance type are provided at the front of the engine and rear of the tender, the tender coupler being fitted with Spencer,



Connecting rod and crosshead assembly, showing the roller bearing application at the gudgeon pin

type. The motion is grease lubricated throughout, excepting the dieblock which is supplied with oil from the mechanical lubricator.

Taper roller bearings have been fitted to all crankpins, the design of the coupling and connecting rods having been developed in close collaboration between British Timken Limited and the locomotive builders. Both connecting and coupling rods are of fluted-section, the connecting rods being forged from EN 13 manganese-nickel-

equipment is fitted on engine and tender.

The locomotive brake blocks, fitted at the front of the coupled wheels, are operated by two 24-in. diameter cylinders. The tender clasp brakes are operated by four 21-in. dia. cylinders. The brake riggings on the tender bogies are independent of each other. A hand brake operating on the front tender bogie only, is also provided. Delaying valves are interposed in the locomotive and tender pipelines to delay the appli-

Moulton rubber drawgear. The engine cab is of all-welded construction and as already mentioned the layout was the subject of close study to provide good operating facilities for the crew. They are provided with bucket type adjustable spring-mounted seats.

Condensing Tender Design

The tender for the condensing locomotive is, like the non-condensing type, provided with a one-piece cast-steel water bottom frame supplied by General

Steel Castings Corporation. The condensing type is some 16 ft. longer. The sides of the structure behind the bunker are constituted by the condensing elements.

The centre is occupied by the fresh-water tank on top of which are mounted the five fans drawing in the air to condense the exhaust steam.

The tender bogie frames are also supplied by General Steel Castings Corporation as one-piece steel castings.

The axleboxes are British Timken roller bearing type. Double-helical spring suspension with Symington, Gould snubbers has been fitted.

The 50 non-condensing and 60 of the condensing locomotives are being fitted with Standard H.T.1 type mechanical stokers designed to operate at a maximum delivery rate of 12,000 lb. of coal per hr. The firedoor is of the sliding type.

The remaining 30 locomotives will be fitted with Berkley stokers and butterfly type Berkley firedoors. The space allocated to the installation of the stoker, however, is such that these can be interchanged if necessary. Stone's

electric lighting equipment is being installed and Stone's Smith electrical speedometers are being fitted.

Condensing Equipment

The condensing equipment has been designed and supplied by Henschel & Sohn. In 1949 they supplied a condensing tender and the equipment for the conversion of the S.A.R. 2-10-2 class "20" locomotive. It was after tests with this locomotive that the order was placed for these present engines.

Briefly, the system is that the exhaust steam from the cylinders is passed into a turbine driving a fan blower in the smokebox which replaces the normal blast pipe draft.

From the blower turbine the exhaust steam passes along the side of the engine, then through an oil-separator to another turbine in the tender which drives the air-intake fans. The fans are driven by bevel gears on a line shaft from the turbine.

Finally, the steam passes to the condensing elements mounted on both sides of the tender. The condensate is collected in a tank fitted

underneath the tender frame and is fed back into the boiler.

The leading particulars of the locomotive are as follow:—

| | | |
|--|-----|---------------------|
| Gauge | ... | 3 ft. 6 in. |
| Cylinders (2) dia. and stroke | ... | 24 in. by 28 in. |
| Coupled wheels, dia. | ... | 5 ft. |
| Bogie wheels, dia. | ... | 2 ft. 6 in. |
| Trailing truck wheels, dia. | ... | 2 ft. 6 in. |
| Rigid wheelbase | ... | 15 ft. 9 in. |
| Total wheelbase | ... | 38 ft. |
| Boiler pressure | ... | 225 lb. per sq. in. |
| Grate area | ... | 70 sq. ft. |
| Heating surfaces— | | |
| Small tubes | ... | 1,965 sq. ft. |
| Large tubes | ... | 1,094 sq. ft. |
| Firebox | ... | 294 sq. ft. |
| Circulators | ... | 37 sq. ft. |
| Total evaporative | ... | 331 sq. ft. |
| Superheater | ... | 630 sq. ft. |
| Total | ... | 4,020 sq. ft. |
| Weight in working order | ... | 121 tons. |
| Adhesive weight | ... | 75 tons. |
| Maximum permissible axleload | ... | 18 tons 15 cwt. |
| Tractive effort at 75 per cent boiler pressure | ... | 45,360 lb. |
| Tender— | | |
| Wheels, dia. | ... | 2 ft. 10 in. |
| Bogie wheelbase | ... | 10 ft. |
| Total wheelbase | ... | 45 ft. 10 in. |
| Coal capacity | ... | 19 tons. |
| Fresh water capacity | ... | 4,400 gall. |
| Condensate capacity | ... | 600 gal. |
| Weight in working order | ... | 109½ tons. |
| Weight of engine and tender in working order | ... | 230½ tons. |
| Total wheelbase, engine and tender | ... | 95 ft. 1½ in. |
| Total length over couplers | ... | 107 ft. 11½ in. |

"Golden Arrow" Diesel Hauled



Southern Region 1,750-h.p. diesel-electric locomotive No. 10202 leaving Victoria on the down "Golden Arrow"; this engine worked the down and up "Golden Arrow" and "Night Ferry" between London and Folkestone and Dover earlier this month for a short experimental period

Scale Prevention and Sludge Removal

A simple method for the treatment of locomotive boiler feed water

IN scale prevention in locomotive boilers the installation of water softeners has been proved to justify the expense involved, partly through reduction in the costs of washouts and boiler maintenance. Water treatment has also shown the following advantages: decreased fuel consumption; increased life of firebox and flues; saving of time necessary for repairs; and greater locomotive availability.

The simplest method of water treatment requires no elaborate dosage machinery or apparatus or elaborate testing to calculate quantities, but adapts itself automatically to variations in the nature of the water. The cheapest is that which gives satisfaction with the minimum of supervisory and maintenance charges. When assessing the actual cost of feed-water treatment the following should be taken into account: the cost of fuel and water lost by blow-down; chemist's time in conducting analyses; supervision for dosing; besides maintenance, laying-off time for repairs, and washing-out and so on.

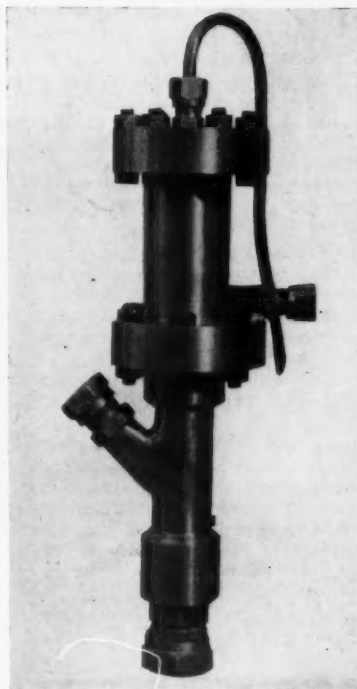
The safest treatment can be left to operatives without chemical training. There should be no danger of damage to the boiler through overdosage be-

The properties of the water have little influence on this dose. A daily or periodical dose then follows which is provisionally set for the state and type of boiler and the quality of water. A simple test will show whether this daily dose needs adjustment.

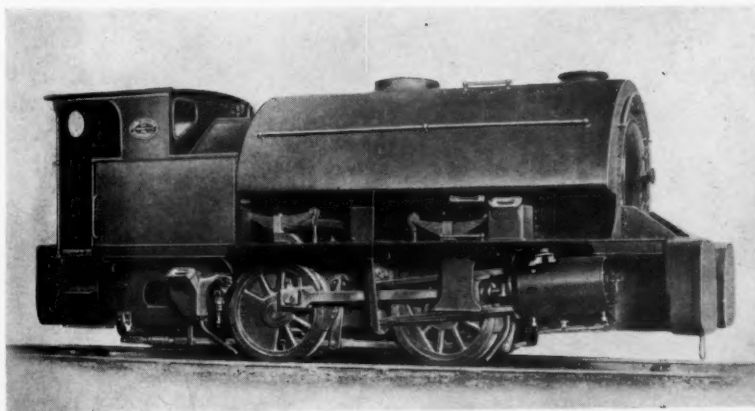
The action of D.M. treatment is to prevent the scale-forming particles from adhering together and from building up a hard or soft crystalline layer on the heating surface. The particles are kept in suspension, so being kept in circulation with the water. In the same way as it prevents scale formation, the treatment prevents traces of oil from adhering to the heating surface. D.M. absorbs dissolved oxygen to below the concentration in which it is harmful.

Removal of Sludge

As the scaling salts are precipitated, being rendered in such a condition that they will not adhere to metal surfaces, they are deposited as sludge. This sludge, if not removed, would accumulate in the narrow water spaces, and on the firebox top. Though not detrimental, unless allowed to accumulate unduly, its removal by the Houseman H.L.H. valve overcomes the necessity for fre-



Houseman H.L.H. valve



Houseman H.L.H. valve fitted to framing near main blowdown valve

cause of miscalculation or other human failure. Obviously underdosage cannot give complete protection against scale formation and corrosion.

A simple method of feed-water treatment is the application of a solution known as D.M. which, being a non-poisonous vegetable extract containing no caustic chemicals, is quite harmless to the human body. No mineral chemicals are added. The solution is added to the water in a sufficient concentration which is checked periodically by a simple test. The initial dose depends on the state of the boiler, the quantity of water in the boiler, and/or the heating surface.

quent use of the main blowdown and, as the sludge is kept to a minimum, prolongs periods between wash-out. This valve, though primarily intended for sludge removal, also deconcentrates the water, a certain amount of which is blown out with the sludge and so prevents priming. The valve body is made of bronze, with a Monel metal insert in the lower portion, the piston stem and orifice plate also being Monel metal.

The operation of the valve is very simple. When the driver opens the regulator, steam passes to the underside of a piston and raises it. In rising the piston draws the needle-pointed stem

from its seat, allowing the sludge to flow out through the orifice. The sludge valve seat is situated above the needle point, there being no seat at the actual orifice, and the piston is so designed that it must rise a pre-determined length before permitting the sludge to flow.

When the regulator is closed, cutting off steam from the underside of the piston, the latter is forced down by the spring closing the valve and causing the needle point to pass sharply through the orifice in the orifice plate, clearing any possible obstruction each time the valve is closed. By this action the orifice is kept open, no choking being possible.

The amount of blowdown is controlled by interchanging orifice plates, four sizes of which are as a rule supplied, these have orifices of $\frac{1}{8}$ in., $\frac{1}{4}$ in., and $\frac{3}{8}$ in.

Installation on a locomotive is a simple matter. The valve is fitted to the framing near the main blowdown valve, as shown in the illustration, a connection for the sludge being taken from the main blowdown pipe, or other suitable point on the firebox shell, provision being made to isolate the valve at any time by a shut-off cock.

The steam inlet pipe, of small bore, is taken from the steam chest, or from the main steam pipe between the regulator and steam chest and attached to the steam inlet on the valve. Tests re-

(Continued on page 249)

Arrival of New Locomotives for East African Railways & Harbours

An order for twenty-nine medium-weight Beyer-Garratts is now in course of delivery

THE first of twelve medium-weight Beyer-Garratt locomotives weighing 154 tons in working order and of the 4-8-2 \times 2-8-4 type, specially built in France for the East African Railways & Harbours Administration and costing some £50,000 each, arrived at Mombasa on January 10.

The locomotive was shipped in parts but has now been erected and is undergoing trials before going into service. One more of the French locomotives was landed on January 18, a further locomotive is due to arrive before the end of February, and the remainder should be delivered within the next two or three months.

The order for these engines was placed in February, 1952, at a much higher price than for similar locomotives built in the United Kingdom. The United Kingdom manufacturer, however, could not give early enough delivery to meet the Administration's requirements, and was therefore requested to sub-contract twelve of these engines to its associates in France. The delivery unfortunately has not been as good as was anticipated. Originally promised for delivery in France in

August last year, production was delayed by labour disturbances in that country.

The locomotives, built by the Société Franco-Belge de Matériel de Chemins de Fer, the French licensees of Beyer, Peacock & Co. Ltd., Manchester, whence have come all the Garratt articulated locomotives used extensively on the East African Railways, are similar to the "56" class which is already operating successfully in East Africa and elsewhere.

Replacement of Old Locomotives

These new locomotives and 12 more identical, now designated the "60" class, were ordered from Beyer, Peacock & Co. Ltd., which also has an order for a further five with the same characteristics but slightly lower in axleload and designated class "55". The first of the Beyer Peacock-built class "60" is due for completion next month and the whole are required to replace locomotives which have now been running for over 25 years. The old locomotives are being maintained in service only with great difficulty and at uneconomic cost, but it is hoped that it will be possible

to keep some of them in service for a few months longer and so provide a short-term accretion to locomotive power.

The delivery of some medium-powered simple-type new locomotives will follow the Garratts from Manchester, and with many new wagons these additions will culminate in a substantial increase in carrying capacity on the Kenya-Uganda section towards the end of the year. A number of Beyer-Garratts of outstanding size and power for 80 lb. rail is also on order from Beyer, Peacock & Co. Ltd.

HEAVY LOADS IN THE LONDON MIDLAND REGION.—No less than 9,055 exceptional loads, the highest number on record, were carried by British Railways, London Midland Region, during 1953; this was 107 more than in 1952. The heaviest was a 119-ton transformer from Rugby to Staythorpe Power Station, Fiskerton, and the longest haul was for a consignment of steel plates from Clydebank to Dover, which travelled 304½ miles over the London Midland Region.



One of the new class "60" locomotives on a test run on the Kenya-Uganda line, E.A.R.

RAILWAY NEWS SECTION

PERSONAL

Mr. J. P. Hugo, System Manager, Windhoek, South African Railways, has been appointed Chief Superintendent (Staff), General Manager's Office, Johannesburg.

Mr. C. W. Hunter, A.M.I.Loco.E., Railway Representative on the Commission of Locomotive Running for the Argentine Government Railways, who, as recorded in our February 12 issue, has been appointed Assistant District Superintendent (Locomotive), Nigerian Railway, served as an apprentice with the London Midland & Scottish Railway between 1924 and 1930, during which time he received a thorough training in locomotive repairs, footplate and running shed work, and in the use of maintenance shops plant and harbour equipment. During this period he also served two years as draughtsman. In 1930 he joined the Traction Department of the Buenos Ayres & Pacific Railway as an Assistant Locomotive Superintendent, and, between 1930 and 1939, he was responsible for the maintenance and operation of locomotives and diesel railcars. In 1939 Mr. Hunter was appointed District Locomotive Superintendent and became responsible for the running and maintenance of heavy goods and passenger locomotives on the 5 ft. 6 in. gauge lines and for rack and articulated locomotives on the Transandine Railway. In 1946, he was appointed Chief Locomotive Superintendent, and, from 1951, he acted as Chief Mechanical Engineer. During the period 1951-53, he was Railway representative on the Commission of Locomotive Running for the Argentine Government Railways. Mr. Hunter voluntarily retired from the Argentine Government Railways in 1953.

Mr. S. Marchant, A.M.I.Mech.E., B.Sc.(Eng.), who, as recorded in our February 12 issue, has been appointed District Superintendent, Nigerian Railway, began his career as a Student Apprentice at the Royal Arsenal, Woolwich, in 1927. In 1930, he took up an appointment with the Great Indian Peninsula Railway, India. After a three-year training course he occupied various junior and senior executive posts, rising to the rank of Divisional Transportation Superintendent and Deputy Chief Transportation Superintendent. In December, 1948, he became General Manager for Northern Ireland with Dow-Mac (Product) Limited, which post he has relinquished to take up his present appointment as District Superintendent with the Nigerian Railway.

Mr. F. T. Holmes, formerly Assistant Engineer in the Transportation Department of the Canadian National Railways at Montreal, who has been appointed Transportation Engineer, Atlantic Region, with headquarters at Moncton, is a native of North Bay, Ontario. Mr. Holmes joined the railway at Montreal in 1950 as Field

Assistant in the Research & Development Department. He became Assistant Engineer in the Transportation Department in 1952.

We regret to record the death, on February 18, of Mr. William Lorimer, Chairman of the North British Locomotive Co. Ltd., 1935-1946. Mr. Lorimer, who died at his home in Glasgow after a brief illness, was the eldest son of the late Sir William

retired from business. His son, Mr. W. Douglas Lorimer, is a Managing Director of the company. The death of Mr. Lorimer will be mourned by a large circle of friends and admirers all over the world. The funeral service was held on February 20 in St. Mary's Cathedral, Glasgow.

PERMANENT ADVISORY COMMITTEE FOR LEVEL CROSSINGS, S.A.R.

The first meeting of the Permanent Advisory Committee recently appointed to investigate all phases of railway level crossing protection and elimination on the South African Railways was opened by the Assistant General Manager (Operating) of Railways, Mr. J. Viljoen, in Johannesburg on February 18, 1954. Mr. W. D. Norval, Chairman of the South African National Road Safety Organisation, also addressed the meeting.

The Committee, which will function in an advisory capacity only, has been formed as a result of discussion between the Department of Transport and the South African Railway Administration, and will investigate methods of protecting level crossings by better sign-posting for road-users, speed-zoning, and the provision of adequate warning devices. The Committee will also determine priorities for the elimination of level crossings.

The Committee is made up as follows:—*Chairman*: Mr. H. J. G. Seeliger, Chief Superintendent (Works & Estates), South African Railways; *Members*: Messrs. R. B. Callard, Assistant Superintendent-Operating (representing the South African Railways), L. C. Reynolds, Chief Engineer, Division of Civil Engineering, C. D. K. Sutton, Principal Clerk, Division of Civil Engineering (representing the Department of Transport), G. Kleyn, Chief Engineer, Transvaal Provincial Administration, F. J. Hugo, Senior Road Engineer, Cape Provincial Administration, A. J. Conacher, Assistant Chief Engineer, Natal Provincial Administration, P. A. de Villiers, Chief Engineer, Orange Free State Provincial Administration. Mr. H. A. Randall, Senior Clerk, Railway Headquarters, will act as Secretary.

Mr. P. C. Mukerjee, M.A.(Cantab), M.I.E., of the Indian Railway Service of Engineers, General Manager of the Indian Railways Locomotive Works at Chittaranjan, has been appointed General Manager of the Eastern Railway, India.

Mr. Menahem Savidor has been appointed Administrative Head of Israel Railways until the appointment of a new General Manager to replace Mr. B. Gilboa, who recently resigned. Mr. Savidor, who has served as Deputy Director-General of the Israeli Ministry of Communications for about three months, has a record of 12 years' service in the British Army and Israel Defence Forces.



The late Mr. William Lorimer
Chairman, North British Locomotive Co. Ltd.,
1935-1946

Lorimer, LL.D. He was born in 1875 and was educated at the Albany Academy and at Glasgow University. At the age of twenty-two he joined the staff of Dübs & Company, the Glasgow locomotive works of which his father was at that time senior partner. In the year 1903 the three Glasgow firms—Sharp Stewart & Co. Ltd., Neilson, Reid & Company, and Dübs & Company—amalgamated to form North British Locomotive Co. Ltd. Mr. William Lorimer was one of the first Managing Directors of that famous amalgamation. About twenty-eight years ago he lost his sight, but in spite of this affliction he returned to business, continuing in his office as Managing Director. In 1935, and in succession to the late Sir Hugh Reid, D.L., Mr. Lorimer was appointed Chairman of the company. He travelled regularly to London and took an active and important interest in the affairs of the Locomotive Manufacturers' Association. He remained Chairman of the Board of North British Locomotive Co. Ltd. until 1946, when he



Mr. E. A. Rogers

Seconded to Pakistan as Principal Lecturer,
Railway Training Centre, Lahore



Mr. A. Swart

Appointed Chairman, South African Railways
& Harbours Service Commission



Mr. J. P. Laurens

Appointed System Manager, Johannesburg,
South African Railways

Mr. E. A. Rogers, Assistant Signal Engineer (New Works) in the Signal & Telecommunications Engineer's Office, Eastern Region, Kings Cross, British Railways, who has been seconded to the United Nations Technical Assistance Administration as Principal Lecturer at the new Railway Training Centre which is to be established at Lahore, Pakistan, (see editorial article elsewhere in this issue), will remain at Lahore for an initial period of one year. Mr. Rogers entered railway service at Finsbury Park in 1925 as an apprentice and transferred to the technical staff of the Telegraph Superintendent in 1927. In 1947 he was appointed Senior Assistant in charge of the Drawing Office of the Assistant Chief Engineer (Signals) at Kings Cross. On the formation of the Signal & Telecommunications Engineer's Department in 1948, he was appointed Indoor Assistant, later being appointed Assistant Signal Engineer (New Works).

Mr. Andrew Swart, System Manager, Johannesburg, South African Railways, who, as recorded in our January 29 issue, has been appointed Chairman of the South African Railways & Harbours Service Commission, was born on September 30, 1895. He joined the S.A.R. as a learner clerk at Klerksdorp in the Western Transvaal on May 6, 1912. After serving in the Pretoria Goods Office and at Baberton and Waterval Boven in the Eastern Transvaal he was transferred to the Chief Accountant's office in Johannesburg on August 10, 1925. Two years later he became Welfare Officer at Kimberley and was transferred to Johannesburg in a similar capacity at the end of 1931. Mr. Swart was appointed Senior Clerk, System Manager's Office, Cape Town, on October 1, 1932, subsequently becoming Senior Clerk, General Manager's Office, Johannesburg (1932), Principal Clerk (Staff) (1938), Staff Investigator, Headquarters (1941), Superin-

tendent (Staff Investigation) (1944), System Manager, Kimberley (1950), and System Manager, Johannesburg (1953). His new appointment as Chairman of the S.A.R. & H. Service Commission became effective on February 1, 1954.

Mr. J. P. Laurens, Chief Superintendent (Staff), South African Railways, who, as recorded in our February 12 issue, has been appointed System Manager, Johannesburg, joined the South African Railways as a clerk at Klerksdorp on February 4, 1918. After serving at various stations, he was transferred to the General Manager's Staff Office on April 1, 1932. He was transferred to the office of the Minister of Railways & Harbours during 1938 and subsequently held the posts of Administrative Secretary to the Minister, Chief Superintendent (Parliamentary), System Manager, Port Elizabeth, and Chief Superintendent (Staff), Headquarters. Mr. Laurens has



Mr. W. M. Ross

Assistant Regional Staff Officer,
Scottish Region, 1951-54



Mr. G. E. Beynon

Chief of Police, Northern Area,
British Transport Commission



The late Mr. G. Jendrassik

Metropolitan-Cammell Carriage & Wagon Co. Ltd.
1948-1954

served on various committees and is at present Vice-Chairman of the Joint Cost of Living Committee (Civil Service & Railways), and a member of the Departmental Benevolent Fund Committee, Uniform Clothing Committee and the Efficiency & Economy Committee.

Mr. W. M. Ross, M.B.E., Assistant Regional Staff Officer, Scottish Region, British Railways, who, as recorded in our February 5 issue, retired on January 16, after 51½ years in railway service, joined the North British Railway Company as a Junior Clerk in the office of the District Goods Manager at Edinburgh on August 18, 1902. In 1906, he became Goods Clerk at Penicuik Station, near his home in Dalkeith. He was transferred in 1908 to the office of the Chief Goods Manager in Glasgow, where he gained experience in various departments until being appointed a Goods Relief Clerk in December, 1911. On January 1, 1917, Mr. Ross returned to Glasgow on appointment to the Staff Department in the Chief Goods Manager's Office, and, in December, 1923, he became Assistant to the Chief Staff Clerk in the Superintendent's Office, Edinburgh, L.N.E.R. Six years later he was appointed Wages Staff Clerk to the Superintendent, North Eastern Area, L.N.E.R., at York, and, in February, 1936, became Goods Agent at Tynemouth, with responsibility for freight traffic working at Cullercoats, Whitley Bay, Monkseaton, and also for the freight and fish quay at North Shields. In January, 1941, he became Head Staff Assistant to the Civil Engineer, York, and two years later returned to Scotland as Staff Assistant to the Divisional Goods Manager (Scottish Area), L.N.E.R., at Edinburgh. On the nationalisation of railways, 1948, Mr. Ross became Assistant Regional Staff Officer (Salaried Staff), Scottish Region, at Glasgow, and, in February, 1951, he was appointed Assistant Regional Staff Officer, the post he has now relinquished. On appointment as Staff Assistant to the Divisional General Manager (Scottish Area) in 1943, Mr. Ross became Chairman of the Sub-Committee of Sectional Council No. 1 (Scottish Area) L.N.E.R., and concurrently became Railway Labour Supply Officer (Operating Grades) for the railways in Scotland, acting in close co-operation with the Ministry of Labour. On the nationalisation of railways in 1948, Mr. Ross became Chairman of the Sub-Committee of British Railways, Scottish Region Sectional Council.

Mr. George Edward Beynon, Assistant Chief of Police (Administration) London Area, British Transport Commission Police, who, as recorded in our February 12 issue, has been appointed Chief of Police, Northern Area, with headquarters at York, has served as a railway police officer for the past 29 years in London, Birmingham, Manchester and Glasgow, and has passed through every rank in the service. The major portion of his career has been in the investigation of crime. In 1946 he received the British Empire Medal for outstanding work in connection with the prevention and detection of crime. He was at that time a member of the London Midland & Scottish Railway police and became the first officer of that force ever to be decorated. He has received commendations on 23 occasions for arrests made. One of the commendations was for the arrest of 103 people within six months for stealing in the Manchester area. Mr. Beynon is 51 years of age and a native of Swansea, Wales. He is a Welsh Rugby Football International and was a member

and captain of the famous "All Whites" Rugby Football Club, Swansea.

The late Mr. George Jendrassik, whose death on February 7 at the age of 55 was briefly recorded in our last week's issue, was born in Budapest in 1898. After graduating from Budapest Technical University, he joined Ganz & Co., the leading engineering firm in post-Trianon Hungary, in 1922. By 1930 his researches had already led to the development of the Ganz-Jendrassik diesel engine incorporating several outstanding features new to diesel practice, the most noteworthy being the cold starting technique and the spring actuated fuel injection pump. These advances were described in a paper he presented to the Second World Power Conference in that year. During the next few years his activities were devoted to perfecting the applications of the engine, particularly with reference to rail traction, and it was largely due to his efforts that Ganz attained such an outstanding position in the diesel railcar field by the outbreak of war. Nevertheless his extremely fertile brain was already at work on a new thermo-dynamic problem—the gas turbine. By 1938 he had already reached the stage of having a small 100 h.p. prototype running. With the outbreak of war his executive responsibilities were increased by his appointment as Assistant Managing Director of Ganz & Co., and in 1942 he became Managing Director. With the whole future of Hungary so uncertain, he had little time or inclination to pursue his scientific researches, and he took the precaution of having his prototype turbine dismantled. After the Russian occupation of Hungary at the end of the war, he found it impossible to continue and in 1947 came to England. He became a consulting director of Metropolitan Railcars (Ganz Patents) Limited, the joint subsidiary of Metropolitan-Cammell Carriage & Wagon Co. Ltd., and Metropolitan-Vickers Electrical Co. Ltd. In 1948 he accepted an appointment as Consultant to Power Jets Limited, and was actively engaged with both concerns up to the time of his death.

Mr. R. S. Pedder, A.M.I.E.E., Assistant (Electric Traction & Generation), London Midland Region, British Railways, who, as recorded in our February 5 issue, has been appointed Principal Assistant (Electrical), Mechanical & Electrical Engineer's Department, Derby, entered the railway service at Horwich locomotive works as a pupil. He became Assistant at Formby power station, and later held positions as Assistant Track Equipment Engineer and Track Inspector on the Liverpool, Southport, Manchester and Bury electric lines. In 1932 Mr. Pedder was transferred to Barking as Assistant Substation & Track Engineer and, in 1938, he moved to Euston as Assistant (Power & Distribution). He went to Derby in 1939 as Senior Technical Assistant (Electrical Generation & Distribution), subsequently appointed General Technical Assistant (Electric Traction & Generation) and later to the post of Assistant.

Mr. E. H. C. Shorto, Acting Coal Supplies Officer, Motive Power Superintendent's Department, Derby, London Midland Region, British Railways, who, as recorded in our February 5 issue, has been confirmed in that position, began his railway career in 1923 when he joined on the former L.N.W.R. as an apprentice at Crewe Works. Completing his apprenticeship in 1927, Mr. Shorto became a fitter at Crewe and underwent further training in the workshops until he joined the Progress Office in 1928. After a year spent partly

in the testing section and partly in the drawing office he moved to Saltley, where he remained until 1932 when he was appointed to a post in the Divisional Operating Superintendent's Department at Derby. Two years later, he returned to Crewe to a position in the Divisional Operating Superintendent's Office. In January, 1935, Mr. Shorto became Running Shed Foreman at Coalville Motive Power Depot and three months later moved to a similar position at Peterborough. From December, 1939, until August, 1940, he acted as Assistant District Locomotive Superintendent at Saltley and, after a further three months at Peterborough, he moved to a position in the District Operating Superintendent's Office, Derby. In September, 1941, Mr. Shorto returned to Saltley as Acting Assistant District Locomotive Superintendent and five years later went to Skipton in a similar capacity. He became Assistant District Locomotive Superintendent, Saltley, in December, 1946, and, a year later, he was appointed Assistant to the Divisional Operating Manager (Motive Power) at Derby. Mr. Shorto became Acting Coal Supplies Officer, Motive Power Superintendent's Department, Derby in 1953.

As a result of recommendations made by the British Railways, Western Region Centre, Mr. H. R. Webb, Stores Superintendent, and Doctor C. T. Newham, Regional Medical Officer, have been admitted to the Order of St. John of Jerusalem in the Grade of Serving Brother.

Mr. E. R. Cottet, Area Superintendent in London for the Southern and Western Hotels, British Railways, has been appointed Chief Hotels Manager, Northern Group, British Transport Hotels and Catering Services, with headquarters at York.

The following staff changes are announced by London Midland Region, British Railways:—

Mr. A. Pygott, Goods Agent, Loughborough, to be Goods Agent, Rochdale.

Mr. J. H. Bowyer, Goods Agent, Carlisle, to be Goods Agent, Aston.

We regret to record the death on February 16, at the age of 80, of Lt.-Colonel Joseph Ramsay Tainsh, C.B.E., V.D., who for many years was Director of the Iraq State Railways. Lt.-Colonel Tainsh was born on January 30, 1874, and was educated at Hamilton Academy and the West of Scotland Technical College. He went out to India where he was employed as a railway engineer from 1905 to 1916, and from 1917 to 1919 served with the British Expeditionary Force in Mesopotamia with the rank of lieutenant-colonel in the Royal Engineers. In 1917 he was appointed Assistant Director of Railways, and, in 1919, Deputy Director of Railways, being twice mentioned in dispatches. From 1921 to 1936 he was Director of the Iraq State Railways. He was made a C.B.E. in 1924 and retired in 1936.

We regret to record the death, on February 16, of Mr. David Cardew, V.D., formerly Chief Mechanical Engineer, North Western Railway, India. Born in 1883, he was appointed as an Assistant Locomotive Superintendent, Indian State Railways, in 1905, and was promoted to be District Locomotive Superintendent in 1913. He held various posts until he became Officiating Deputy Chief Mechanical Engineer in 1931 and Superintendent of Mechanical Workshops, N.W.R., in 1932. In the following year Mr. Cardew offici-

ated as Chief Mechanical Engineer, an appointment in which he was confirmed in 1934. He retired from the service in 1936.

Mr. C. R. Bennett, Assistant District Operating Superintendent at Euston, London Midland Region, British Railways, has been appointed District Operating Superintendent at Liverpool (Cheshire Lines).

The following appointments have been announced by British Railways, London Midland Region:

Mr. H. H. Basford, Assistant to Divisional Motive Power Superintendent, Derby, to be District Motive Power Superintendent, Wellingborough.

The following "acting" appointments have now been confirmed:—

Mr. T. P. Strafford, Assistant Divisional Operating Superintendent, Derby.

Mr. C. R. Burnett, District Operating Superintendent, Liverpool Central.

Mr. C. B. Glenesk, A.M.I.C.E., District Engineer, Glasgow (North), Scottish Region, British Railways, has been appointed District Engineer, Glasgow (South) and not, as recorded in our last week's issue, District Motive Power Superintendent, Glasgow (South). We regret this error, which arose from the confusion of Mr. Glenesk with another officer.

The following appointments have been announced by British Railways, Scottish Region:—

Mr. C. W. Barclay, Assistant to Regional Staff Officer, Scottish Region, to be Assistant Regional Staff Officer, Scottish Region.

Mr. R. Young, Works Accountant, Cowlairs, Glasgow, to be Assistant to Accountant (Mechanical & Electrical Engineering and Carriage & Wagon Engineering), Scottish Region.

Mr. T. Twaddle, Assistant Superintendent Engineer, Gourrock, to be Superintendent Marine Engineer, Clyde Shipping Services, Gourrock.

Mr. G. Whittle, Clerk, District Commercial Superintendent's Office, Edinburgh, to be Assistant District Traffic Superintendent, Inverness.

Mr. G. F. Johnston, Australian Traffic Manager at Sydney, Australia, Canadian National Railways, is retiring on February 28 after 44 years of railway service. He will be succeeded at Sydney by Mr. Douglas R. Crawford, General Agent in Melbourne for the C.N.R.

Mr. W. G. Davis, Division Freight Agent, Hamilton, Ontario, Canadian National Railways, has been appointed General Freight Agent, Toronto, succeeding Mr. E. R. Dalrymple, whose promotion to Freight Traffic Manager, Central Region, was recorded in our December 25, 1953, issue.

The following appointments have been announced by the Canadian Pacific Railway:—

Mr. H. W. Howard, Superintendent of Traffic, Montreal, becomes Superintendent of Communications, Sudbury, Ontario.

Mr. J. E. Lord, Assistant General Freight Agent (Rates & Divisions), has been appointed General Freight Agent, Prairie Region, Winnipeg.

The late Mr. W. A. Tookey, whose death was briefly recorded in our February 19 issue, practised in Westminster as a consultant for more than forty years. He took an active part in the work of the engi-

neering institutions. He specialised in the application and operation of internal combustion engines, evolving, in connection with the latter, a method of comparing the output of power from internal combustion engines with the relative richness of charge, which method has been known since 1914 as the "Tookey Factor." Mr. Tookey was elected a member of the Institution of Mechanical Engineers in 1912, served for some years on its Oil Engine Trials Committee, and contributed several papers to its Proceedings. He was also a member of the Institute of Fuel, the Diesel Engine Users Association, and the Association of Consulting Engineers, and, for a time, served as Chairman of the Internal Combustion Engine Panel of the British Standards Institution.

Mr. J. J. Callender, C. A. Parsons & Co. Ltd., has been elected an Associate Member of the Institution of Mechanical Engineers.

Mr. W. A. Smyth, Managing Director of W. G. Bagnall Limited, Stafford, has left England on a business visit to South Africa.

Mr. F. C. G. Mills, M.Inst.T., has been appointed Chief Executive Officer, W. H. Martin, Limited, as from January 1, 1954.

Mr. Alexander McDonald, B.Sc., M.I.C.E., has been appointed Secretary of the Institution of Civil Engineers, succeeding Mr. E. Graham Clark, C.B.E., M.C., M.Sc., M.I.C.E., who is retiring this year.

Mr. R. K. Evans, A.C.G.I., A.M.I.Mech.E., has been appointed Senior Engineer on the staff of C. MacKechie Jarvis & Partners, 34, Victoria Street, London, S.W.1.

Mr. Norman E. Carlson has been appointed Works Manager in charge of all operations of the St. Charles, Missouri, plant of the American Car & Foundry Company.

Mr. B. R. Beebe, Assistant Sales Manager of Henry Meadows Limited, Wolverhampton, is leaving this country on February 25, to study current marketing conditions in Venezuela, Colombia, Ecuador and Trinidad. Mr. Beebe will be away for approximately four months.

Metropolitan-Vickers Electrical Co. Ltd. announces that, following the transfer of Mr. W. L. Beeby to the Edison Swan Electric Co. Ltd., Mr. C. H. Smith, A.M.I.Mech.E., has been appointed Works Engineer as from November 1, 1953. Mr. J. H. Phillips becomes Assistant Works Engineer.

We regret to record the death on February 15, at the age of 61, of Mr. John Rogers, who had been associated, although not continuously, with the English Electric Co. Ltd. for 40 years. From 1938 until last year, when he was granted indefinite leave because of poor health, he had been General Manager of Works for the company and a Director of the English Electric Export & Trading Company.

Sir Lynden Macassey, K.B.E., has not sought re-election as independent Chairman of the British Internal Combustion Engine Manufacturers' Association. Following this decision, the Council announces that a Chairman of Council, assisted by a Director, will be elected in place of an independent Chairman. Mr. W. K. G. Allen, M.I.Mar.E., A.M.Inst.N.A., is the new

Chairman, and Mr. C. C. M. Logan, T.D., the new Director.

Mr. Douglas Digby Hawley, M.C., has been elected to the board of Hadfields Limited as Sales Director.

Sir Rex Hodges, whose retirement from the position of General Manager & Secretary of the Mersey Docks & Harbour Board will take place in March, is joining the Board of British Insulated Callender's Cables Limited as from March 31, 1954.

Mr. F. W. Baggett, A.M.I.Mech.E., of Hartshorne & Baggett, Design Contractors, of Wolverhampton, has now established a consulting practice, specialising in gearing and geared power transmissions. Mr. Baggett will at present use his private address, "Linden Lea," Buttons Farm Road, Penn, Wolverhampton (telephone: Wolverhampton 38177).

INTERNATIONAL RAILWAY CONGRESS ASSOCIATION

At a meeting of the Permanent Commission held on November 21, 1953, in the offices of the Belgian National Railways Headquarters, Brussels, Mr. De Vos, President, announced that Lord Hurcomb, at that time Chairman of the British Transport Commission, and Member of the Executive Committee of the Permanent Commission, and Mr. P. Ghilain, Directeur du Materiel et des Achats, Belgian National Railways, Vice-President of the Executive Committee and General Secretary of the Association, had retired.

The meeting was informed of the changes which had occurred in the membership of the Permanent Commission since its last meeting and the new nominations were approved:—

Mr. W. H. Maass, Advisory Engineer to the High Commissioner for the Union of South Africa in London, succeeding Mr. G. Lindenberg, who has returned to South Africa.

Messrs. Raphael Luna and P. P. Martin, formerly representing the Argentine Republic, no longer hold Government office. The names of their successors will be announced by the Argentine Government in due course.

Mr. Hussein Abu Zeid, Minister of Communications for Egypt, replaces Mr. Taraf Aly.

Mr. Mohamed Aref Aboul Ata, Under-Secretary of State to the Ministry of Communications, Egypt, replaces Mr. Abdel Rahman el Sayed Ammar.

Mr. A. M. Risz, General Manager of Railways, Telegraphs & Telephones, Egyptian Administration, succeeds Dr. Sayed Abdel Wahid, former General Manager.

Mr. Abdel Moneim Rashad, Deputy General Manager of Railways, Telegraphs & Telephones, Egyptian Administration, succeeds Mr. Hassan Fahmy.

Mr. Porchez, Deputy General Manager, French National Railways, replaces Mr. Lemaire.

Sir V. M. Barrington-Ward and Mr. R. A. Riddles, formerly Members of the Railway Executive, British Railways, have retired. Their successors will be announced in due course.

Mr. Ranald J. Harvey, Consulting Engineer to the Government of New Zealand in London, has resigned his office and sent in his resignation as a member of the Permanent Commission.

According to Article 6 of the Rules and Regulations of the Association, one-third of the members of the Permanent Commission shall retire at each Congress and shall be eligible for re-election.

British Transport Commission Statistics (Period No. 13)

Summary of the principal statistics for the four-week period ending December 27

STAFF

| | B.T.C. Head Office | British Railways | London Transport | British Road Services | Road Passenger (Provincial) | Hotels & Catering | Ships & Marine | Inland Waterways | Docks, Harbours Wharves | Railway Clearing House | Commer- cial Adver- tisement | Legal | Films | Total |
|------------|--------------------------|---------------------|---------------------|-----------------------------|-----------------------------------|----------------------|-------------------|---------------------|-------------------------------|------------------------------|------------------------------------|-------|-------|---------|
| Number ... | 824 | 593,509 | 94,643 | 68,508 | 59,891 | 15,376 | 5,901 | 4,672 | 21,049 | 529 | 202 | 340 | 42 | 865,486 |

BRITISH TRANSPORT COMMISSION TRAFFIC RECEIPTS

| | Four weeks to December 27 | | Aggregate for 52 weeks | |
|--|------------------------------|--------|---------------------------|---------|
| | 1953 | 1952 | 1953 | 1952 |
| | £000 | £000 | £000 | £000 |
| British Railways— | | | | |
| Passengers | 8,318 | 8,280 | 114,462 | 111,325 |
| Parcels, etc., by passenger train | 3,006 | 2,843 | 38,444 | 35,792 |
| Merchandise | 8,022 | 7,710 | 105,809 | 103,718 |
| Minerals | 3,512 | 3,333 | 45,169 | 41,866 |
| Coal & coke | 8,452 | 7,849 | 108,654 | 100,931 |
| Livestock | 169 | 129 | 2,550 | 2,254 |
| Total British Railways | 31,479 | 30,144 | 415,088 | 395,886 |
| British Railways C. & D. | 885 | 817 | 11,630 | 11,222 |
| British Road Services | 5,950 | 5,696 | 79,079 | 76,450 |
| Provincial & Scottish Buses | 3,408 | 3,208 | 49,821 | 47,465 |
| London Transport— | | | | |
| Railways | 1,464 | 1,415 | 18,159 | 17,858 |
| Buses & coaches | 3,146 | 2,744 | 40,749 | 39,023 |
| Trolleybuses and trams | 724 | 641 | 9,200 | 9,411 |
| Total London Transport | 5,334 | 4,800 | 68,108 | 66,292 |
| Ships | 663 | 650 | 11,472 | 11,560 |
| Inland Waterways—Carrying | 69 | 69 | 903 | 900 |
| Total passengers | 17,292 | 16,519 | 237,829 | 230,537 |
| Total freight, parcels & mails | 30,496 | 28,865 | 398,272 | 379,238 |
| Inland Waterways—Tolls, etc. | 97 | 97 | 1,346 | 1,322 |
| Docks, Harbours, etc. | 1,204 | 1,145 | 16,667 | 15,973 |
| Hotels & Catering | 1,257 | 1,226 | 16,993 | 16,259 |
| Total | 50,346 | 47,852 | 671,107 | 643,329 |

LONDON TRANSPORT

| | Passenger journeys | Inc. or dec. per cent over 1952 | Car miles | Inc. or dec. per cent over 1952 |
|------------------------|-----------------------|---------------------------------------|---------------|---------------------------------------|
| Railways | 000 43,853 | - 4.5 | 000 15,898 | + 0.8 |
| Buses & coaches | 218,035 | + 5.8 | 25,485 | + 4.0 |
| Trolleybuses | 56,352 | + 5.9 | 5,408 | + 2.9 |
| Total | 318,240 | + 4.3 | 46,791 | + 2.8 |

INLAND WATERWAYS Tonnage of traffic and ton miles

| | Tonnage | Inc. or dec. per cent over 1952 | Ton miles | Inc. or dec. per cent over 1952 |
|---------------------------------------|------------|---------------------------------------|--------------|---------------------------------------|
| Coal, coke, patent fuel & peat | 000 498 | + 13.5 | 000 6,962 | + 10.3 |
| Liquids in bulk | 140 | - 0.8 | 3,270 | - 5.3 |
| General merchandise | 298 | + 19.9 | 4,653 | + 9.3 |
| Total | 936 | + 13.0 | 14,885 | + 6.2 |

BRITISH RAILWAYS Rolling Stock Position

| | Operating stock | Number under repair | Available operating stock | Available stock in 1952 |
|--------------------------|--------------------|---------------------------|---------------------------------|-------------------------------|
| Locomotives | 18,607 | 2,850 | 15,757 | 15,853 |
| Coaching vehicles | 57,246 | 4,604 | 52,642 | 52,433 |
| Freight wagons | 1,122,417 | 69,032 | 1,053,385 | 1,044,632 |

BRITISH RAILWAYS Passenger Journeys (Month of November, 1953)

| Full fares | Excursions, cheap day, etc. | Other descriptions | Early morning | Season tickets | Total | Inc. or dec. per cent over 1952 |
|---------------|--------------------------------|-----------------------|---------------|-------------------|------------|---------------------------------------|
| 17,281,000 | 16,782,000 | 3,035,000 | 15,992,000 | 20,127,000 | 73,217,000 | + 3.8 |

BRITISH RAILWAYS Freight Tonnage Originating and Estimated Ton-Miles (Period No. 13)

| | Merchandise | Minerals | Coal & coke | Livestock | Total | Inc. or dec. per cent over 1952 |
|-------------------------|--------------|--------------|---------------|-----------|---------------|---------------------------------------|
| Tons originating | 000 3,773 | 000 4,955 | 000 13,643 | 000 49 | 000 22,420 | + 6.0 |
| Ton-miles | 509,049* | 395,685 | 824,383 | — | 1,729,117 | + 6.6 |

* Includes livestock

BRITISH RAILWAYS (Period No. 13)

| | Total steam coaching train-miles | Total electric coaching train-miles | Total freight train-miles | Freight train- miles per train engine-hour | Net ton-miles per total engine-hour | Locomotive coal consumption | |
|-------------|--|---|---------------------------------|--|---|-----------------------------|------------------------|
| | | | | | | Total tons | Lb. per engine-mile |
| 1953 | 13,336,000 | 3,585,000 | 10,565,000 | 8.17 | 611 | 984,000 | 62.9 |
| 1952 | 13,205,000 | 3,470,000 | 10,063,000 | 7.94 | 578 | 1,019,000 | 66.1 |

Ministry of Transport Accident Report

Between Forest Gate and Manor Park, May 24, 1953; British Railways, Eastern Region

Colonel W. P. Reed, Inspecting Officer of Railways, Ministry of Transport, inquired into the accident which occurred at about 3.58 a.m. on May 24, 1953, near the Forest Gate Junction signal box, when the 3.45 a.m. electric train, Liverpool Street to Gidea Park, a railway staff train in which a few public passengers travel by special permission, consisting of nine coaches, over-ran without slowing down a colour-light signal at danger and collided at a cross-over junction with the 3.30 a.m. class "H" freight train, Goodmayes to Temple Mills, consisting of 31 wagons and brake van hauled by an 0-6-0 tank engine, which was passing slowly from the up electric to the up main line. The damage and other circumstances indicated the speed on collision to have been about 35 m.p.h. The motorman escaped with superficial wounds, shock and severe bruising and the guard of his train sustained a fractured rib and

3.52 and the signalman started to set the route for it before receiving the description of the electric train at 3.55. The former entered the crossover at 3.58 with all signals clear. The electric train stopped at Forest Gate Station and started with signal DE5C at yellow and while approaching the signal in advance accelerated as if running under clear signals. Signal F.37, 368 yd. ahead, was at that time approach controlled in consequence of the crossing movement and did not change from red to yellow until the train was about 200 yd. from it, as the signalman did not operate its controlling switch until track circuit E.125, which begins 225 yd. in rear of the signal, became occupied. The train passed the signal and then over-ran F.39 without reducing speed. There was a good deal of damage to the freight wagons but little to the passenger train. The driving controls were found in their

was accelerating. He did not see F.39, more or less obscured then by smoke and steam. The other driver who helped the injured guard by going back himself did not then look back at the signal, but saw it to be at red later.

The only evidence that the signal might not have been alight was given by the freight train driver. He also did not look back when the accident happened but some time later saw that "everything was fused with the impact and the junction signals were dead." His evidence, however, was given reluctantly and was confused and in parts manifestly inaccurate. Colonel Reed felt he could not rely on it.

Motorman's Statement

The motorman did not remember any signal after F.37 until the collision. He said that DE5C was at yellow when he started from Forest Gate Station and

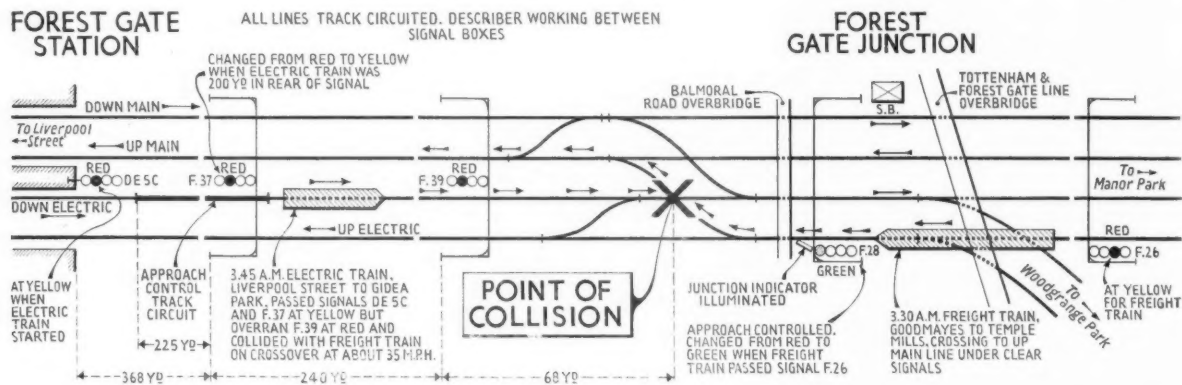


Diagram showing circumstances of accident between Forest Gate and Manor Park, British Railways, Eastern Region, May 24, 1953

wrist, notwithstanding which he carried out his duty of protecting the train and attending to the passengers in a praiseworthy manner. The guard of the freight train was severely shaken.

Assistance arrived promptly. Current was cut off at once on the three lines involved and on the down main six minutes later, as a precaution. All four were blocked. The down main was opened at 8.40 a.m. but the others not until the following morning, owing to the slow working of the cranes between the overhead traction wires. It was a clear, still night, with dawn just breaking, and dry rails.

The line was re-signalled in 1949 for a close headway, completely track circuited and fitted with 4-aspect colour-light signals. With the route set at a signal box for through running the signals work automatically for following movements. The working is controlled by train describers and the Forest Gate Junction box has a 15-lever mechanical frame, with thumb switch panel above for operating the signals. The accompanying diagram shows the lines, signals and other details essential to an understanding of the case. The signals are all well sited.

Course of Events

The freight train was recorded as appearing on the describer at the junction box at

proper order for an emergency stop. Evidence of the guard and two drivers travelling as passengers confirmed that the speed was at least 30 m.p.h.

Colonel Reed considered very carefully whether there was any possibility of signal F.39 having shown an incorrect proceed indication as the evidence was clear in every respect except that. There was no positive evidence about the aspect of this signal immediately before, or immediately after the accident, though a number of the witnesses were running staff who knew the line well and were in close proximity to it. On the other hand there is no evidence that the signal was showing a wrong indication. The signalman said that its repeater lamp showed it to have been at red, and that was supported by the linesman who tested the box $\frac{1}{2}$ hr. after the accident and found nothing wrong, and the chief inspector, signals and telecommunications, who later made comprehensive tests of all equipment, cables, interlocking and controls associated with signals F.37 and F.39 and found everything in order; F.39 was seen at red at some interval after the collision by the linesman and the freight train fireman. One of the drivers travelling as a passenger confirmed that the signal at Forest Gate platform was at yellow and also F.37, although he had only an oblique view of them. He was interested, however, on account of the way in which the train

F.37 at red, changing to yellow as he approached. He did not remember if he braked then but was travelling "only at a crawling pace." Suddenly he saw "trucks coming at me" and applied the brakes as the trains collided. He was sitting in the driver's seat, as was his custom, and had the heater on and the window nearly closed.

Inspecting Officer's Conclusions

It is clear that the train travelled as if it had a clear road from Forest Gate until the collision, despite restrictive aspects at signals DE5C and F.37. Colonel Reed is satisfied that F.39 was at red and can only conclude that the motorman was not alert and had ceased to pay attention to signals for a few critical moments, after seeing F.37 change to yellow, and suddenly came to consciousness a moment before the collision. The approach control of F.37 is 225 yd. long, that signal turning to yellow when he was still some distance away.

This may have helped to give him the idea that the track was clearing ahead of him behind the preceding train. This may in part account for, but does not excuse his loss of concentration. Still shaken when he gave his evidence he impressed Colonel Reed as frank and truthful. The vagueness of his account of what happened immediately before the collision

may well have indicated his lack of alertness then. He is 52 and has a good record during 33 years service.

Remarks and Recommendations

It is difficult to understand how a man could have passed such a bright, properly focused signal so close to his line of sight. He knew the line well and had been a motorman from the electrification four years before. He was in good health and without troubles. The previous day he had rested well, but had had an unusually long break at Ilford from 1.40 to 3.16 a.m., and it may be he dozed off then and had not taken sufficient pains to wake himself thoroughly before starting to drive again. Be that as it may, Colonel Reed can find no excuse for his lapse.

Warning automatic train control of the type as applied to multiple-aspect signals in the British Railways system now on trial should have prevented this accident, as the brakes would have been applied at the track magnets 200 yd. in rear of signal F.39 and could have stopped the train in time. This line with its up-to-date colour-light signals has less need of a.t.c. than routes with semaphore signals.

Colonel Reed recommends that the approach controls be modified to maintain a signal at red long enough to ensure the driver taking some action before yellow is given, which is not the case at present. The change of aspect would then be more distinguishable from that so often presented to a train following close behind another. The Eastern Region has examined the arrangements on this route and is proceeding to modify them to meet this recommendation.

Scale Prevention and Sludge Removal

(Concluded from page 241)

cently carried out with special reference to chokeage show that in no instance has the valve failed through choking.

Results of Trials

Trials of both the D.M. solution and the Houseman H.L.H. valve have been carried out on a locomotive, when it was found that the engine could run a month, operating 24 hr. a day, evaporating some 2,400 gal. daily. During 30 days steaming about 42 lb. of sludge was produced, and when the engine was brought in for a wash out, not more than a handful of sludge was present in the boilers. These trials showed that the locomotive concerned could have easily worked more than 30 days without its boiler being washed out.

With the use of continuous blowdown as provided with the H.L.H. valve on test, there was a small amount of heat loss, but this loss was not comparable with the savings obtained by efficient water treatment. These tests, carried out on an industrial locomotive, have shown that reduction of operating costs are possible without any highly trained staff to handle the water treatment and that the valve is an efficient automatic part of the equipment. Savings would also be obtained on main-line locomotives where a quick turnaround would be possible by saving wash-out time.

Dual-Purpose Motor Ferry for Clyde Services

Additional passenger and cargo vessel launched at Troon

The second of the dual-purpose motor ferry vessels built as part of the British Transport Commission scheme to improve shipping services in the Clyde estuary was launched on January 20 at the Troon yard of the Ailsa Shipbuilding Co. Ltd. The new ship was given the name *Cowal* by Lady Bilsland, wife of Lord Bilsland of Kinrara.

The motor ferry vessels of which the *Cowal* is the second of three being brought into service this year are specially designed for the conveyance of passengers, cargo, motor vehicles, and cattle, and will serve Dunoon, Rothesay, and Arran from the mainland.

The principal features are:—

| | |
|----------------------|---------------|
| Length, overall... | 185 ft. 6 in. |
| Breadth, moulded ... | 35 ft. |
| Tonnage, gross... | 650 |
| Draught, loaded ... | 7 ft. 6 in. |
| Speed ... | 15 knots. |

The new ships, which will be fitted with modern amenities including spacious lounges, tearooms, and refreshment bars, will carry up to 450 passengers.

Lift for Road Vehicles

The main deck will provide covered accommodation for cargo and motorcars. An electrically-operated lift 33 ft. broad × 20 ft. long will raise or lower vehicles between pier and main deck levels at all stages of the tide; turntables on the lift platform and at the forward end of the car deck will facilitate stowage. The lift will be capable of taking a bus 30 ft. long × 8 ft. broad × 9 ft. 6 in. high.

The vessel is twin screwed; the main propelling machinery consists of two British Polar Atlas diesel engines.

Mr. T. F. Cameron, Chief Regional Manager, British Railways (Scottish Region), speaking at the launching ceremony, complimented the designers, Wm. Denny & Brothers, and the builders of the

ship for having successfully solved the problem of meeting changing conditions in the Clyde estuary traffic. He felt the greatest possible satisfaction, he said, with the performance of the prototype vessel *Arran*, which was in service between Gourock and Dunoon.

This satisfaction was also felt by the local authorities, he added, and he looked forward to completion of the building programme, which would permit these vessels to provide a service answering present-day requirements and supplying an additional attraction for tourist traffic.

Mr. J. C. L. Train, Member of the British Transport Commission, also paid tribute to the Clyde shipbuilding industry and said there was no doubt that the policy being pursued by the Commission as to the Clyde services was the right one, and when the ships were all in service would provide greater facilities than existed at the present time.

ASSOCIATED BRITISH ENGINEERING LIMITED: SALE OF HOLDING.—Associated British Engineering Limited announces its agreement to sell to Thomas Tilling Limited at the current market price its holding of 2,000,000 ordinary shares of the Brush Electrical Engineering Co. Ltd.

NEW BRIDGE AT CARTSDYKE, SCOTTISH REGION.—The timber bridge which spanned the Glasgow-Gourock line at the Port Glasgow end of Carlsdyke Station was removed and a new steel bridge, with concrete floors, was placed in position on Sunday, February 14. The replacement was carried out without interruption to the train services between Glasgow, Greenock and Gourock.



British Railways m.v. "Cowal" going down the launching ways at the Troon yard of the Ailsa Shipbuilding Co. Ltd.

Transport's Role in Industry

The development of status of the transport manager in America

Mr. Robert J. Bayer, Editor of *Traffic World* and President of the American Society of Traffic & Transportation was the guest of honour at a dinner given at the Transportation Club, on Thursday, February 18.

Mr. K. W. C. Grand, Chairman of the club, presided, and among those present were:—

Messrs. L. B. Alexander, M. F. Barnard, R. A. Beckett, H. P. Beltem, V. Bridge, Lt.-Colonel F. Bustard, Messrs. J. H. Bustard, B. W. C. Cooke, Pierre Collinet, H. C. Crane, M. A. Crane, F. W. Crews, R. H. Dobson, Commander H. S. A. Gerson, Messrs. D. Handover, S. G. Hearn, E. S. Hunt, Shirley H. James, D. P. Lean, A. G. Marsden, E. J. Morris, J. R. Pike, T. W. Royle, H. Sampson, C. E. R. Sherrington, W. H. Stebbing, E. A. Toneri, T. Winchester, M. de A. Leao

Mr. Bayer, who was completing a tour of European countries including Italy, Germany and France, read an address in the course of which he said that, for the United States he, like all adherents to the American industrial system, remained unalterably opposed to the ownership and operation of the means of transport by the national government.

Public Ownership of Transport

If his views had suffered any change in the weeks he had spent on the Continent and in Britain, it was only in this—that government ownership and operation had come about of necessity in some nations—and that government ownership and operation were tolerable in some instances because they represented the alternative to no service at all, particularly when considered in relation to the railroads.

However salutary the provisions of national transport legislation might be, so long as human nature remained what it was, the normal result of such ownership and operation would be especial care for the nationally-owned and operated lines by the government of the nation which owned and operated them.

There seemed to be no hesitation in Italy—even among the large class of semi-

bureaucratic rail managers—in admitting the fact that they were favouring an attitude of government toward road-building and road-maintaining policies that would serve not to assist the public road hauler.

In Germany he had discovered the government policy to be more orderly. There, the government, in its attempt to hold business on the rails, legislated a parity between rail and road charges, so that the user at least had this advantage—he had to keep at hand only the rail schedule of charges because the same schedules applied over the rails and over the roads. There were those in Germany most interested in progress of road transport who laughed quietly at the policy. "Every time the rails raise their charges," they said, "road charges go up in the same proportion; so the prosperous road haulers continue to grow richer."

In France, by statute, the number of public road haulage vehicles was held down by law to the number in operation in 1934. The French railroads were not gaining much by the public road vehicle limitation. The policy had resulted simply in the movement of goods over the roads by privately-owned vehicles rather than by what, in America, were called common carriers.

Governmental Control in Britain

In Britain there had been control of both rail and long-haul road transport by the government until the adoption of the Transport Act of 1953. That Act was intended to insure the future operation of the British Railways on a competitive plane and to put the ownership and operation of road haulage back into the hands of private capital and private operators.

He could say some cold things about the arrangement by confining himself strictly to quotations from British business and transport men. Those quotations would reveal some startling paradoxes. They would indicate that some Conservative businessmen had real regrets for the return of the road hauling business to private hands at just the time when it appeared that there was to emerge some

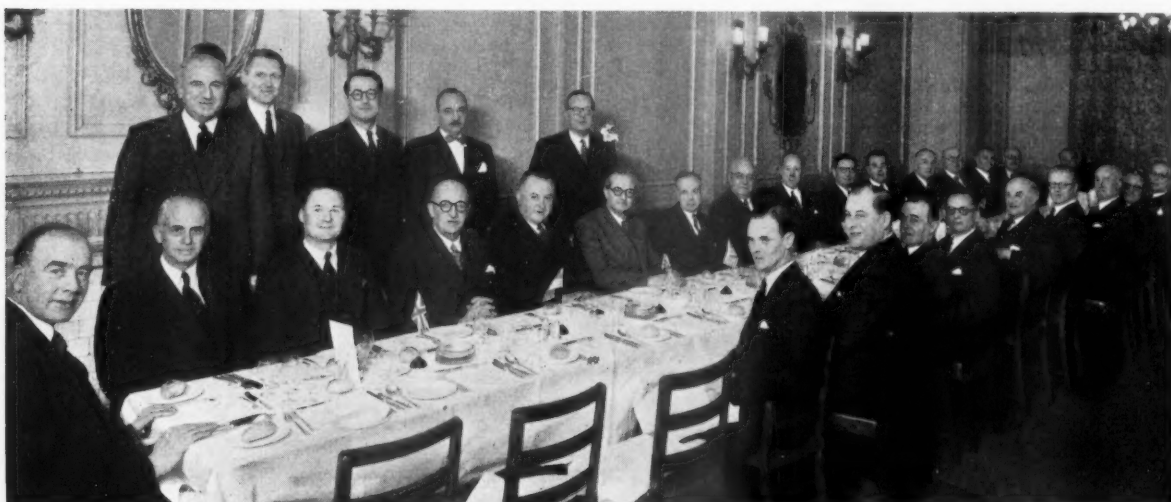
sort of order in the road haul charges of the government-operated projects. On the other hand, they would reveal some real regrets about what the new law intended to be competitively-operated railroads on the part of roadroad officers themselves, who conceived prospects for operational progress under the new regime less bright than they had been under the old.

The American industrial transport manager had to deal with, negotiate with, purchase from railroads on the one hand, highway transporters on the other, and waterway and air carriers as their service fitted his needs, without having available the obvious combinations that might give him what he wanted at a price fitted to the cost of the service. It was on the basis of his responsibility that the American Society of Traffic & Transportation was being built.

By reason of its system of transportation regulation, and the complexity of its freight rate structure, American transportation demanded of those who were in charge of transport for industry a high degree of technical training. Given the technological training, the American traffic manager had had to acquire a background of business administration; he had had to learn a lot about personnel management; he had had to acquire an understanding of production problems.

His new aptness as a business administrator was the result of the cold fact that distribution and transport had become so important in American business that the transport or traffic manager had had to be ready to take his place in top executive councils.

NEW CHLORIDE STATIONARY CELL.—The range of sealed-in stationary cells produced by Chloride Batteries Limited, of Clifton Junction, Swinton, Manchester, has been augmented by a new cell, the Chloride GCG10E, with a capacity of 450 Ah. at the 10-hr. rate of discharge down to a final voltage of 1.85. The cell is applicable to emergency light and power, switch-closing, and similar duties in industry, and may be used in all types of circuit whether floating, trickle charge, or straight charge and discharge. Separators of Porvic, a new microporous plastic material, form a continuous diaphragm between the plates and thereby avoid any possibility of internal short circuits.



At the Transportation Club on February 18. Mr. Robert J. Bayer is seated on the right hand of Mr. K. W. C. Grand, Chairman of the club

Institution of Railway Signal Engineers

At a well-attended meeting of the Institution of Railway Signal Engineers in London on January 12, 1954, with the President, Mr. T. Austin, in the chair, a paper was read by Mr. J. P. Loosemore on level crossing protection, the subject of an editorial article in our issue of February 5. In the subsequent discussion, Mr. J. H. Fraser said there were two questions for the signal engineer: first, could an increase in effective protection be secured on public level crossings by conversion from gates to barriers with lights, or by taking away the barrier and having lights alone? and, second, what could be done at occupation crossings where there was heavy traffic and a major disaster could result if a heavy express train ran into a large road vehicle? There were cases where the cost of level crossing protection could be reduced appreciably, but for certain legal restrictions.

Mr. E. G. Brentnall thought that with different methods of warning for level crossing it might not matter much if there was one type in the U.S.A., one type in Canada and one type in South Africa, but with a number of countries contiguous, as in Europe, diversity in warning methods might complicate the issue for motorists. Recent discussions had taken place on the Continent in an attempt to standardise road crossing warning devices there, and Mr. Brentnall described some of the problems under examination.

Colonel D. McMullen said that the subject was one in which the Inspecting Officers of the Ministry of Transport were vitally concerned. Few would disagree that level crossings in Great Britain were the safest in the world. There was really no problem from a safety point of view, as far as public level crossings were concerned; the problem there was an economic one. The Inspecting Officers appreciated the financial burden placed on British Railways in connection with these crossings, and they were always willing to give sympathetic consideration to any scheme to ease that burden, if based on sound safety principles.

Occupation Crossings

The main problem was that of accommodation or occupation crossings. There the problem was entirely financial, and he wondered whether the signal engineers could not contrive an exceedingly simple and cheap form of device which would give road users a visual indication of the approach of a train.

Mr. D. R. Greig, of the Automobile Association, said that road users generally were well satisfied with the measures taken in Britain to prevent level crossing accidents. Their main complaint was the delay to road traffic, though it was appreciated that was due to safety reasons. As to advance warning of a level crossing, he thought that the road traffic warning sign was rather small for present-day conditions, and he advocated simplicity and uniformity for warning devices at the crossings themselves. He felt that level crossings should be abolished from main traffic routes wherever possible, but where they remain, there was a strong case for trying out a new system for reducing delays, but without prejudice to public safety.

Mr. A. J. A. Hanhart, of the Royal Automobile Club, referring to the suggestion that a grant might be made from the Road Fund to expedite modernisation at level crossings, said that as the accident record for level crossings was good compared with that for the rest of the roads,

the money might be spent more advantageously on other parts of the road.

Mr. H. J. Guthrie described level crossing arrangements in Ireland. After examining statistics, they had come to the conclusion that it was better to provide a telephone at every crossing rather than protect it by signals. If it could be done economically, provision of barriers at crossings would help to solve their problems.

Mr. N. Seymer, of the World Touring & Automobile Association, spoke of international tests suggested with automatic half-barriers at crossings throughout Europe, and hoped that Great Britain would join in those tests.

Mr. J. Runnett, who was also in favour of barriers, described his experience with level crossings in the Argentine.

More improvements in Progress at Euston

Since the completion of the £300,000 scheme on the arrival side at Euston Station, more reconstruction work is now in progress. The new work is on the departure platforms Nos. 12-15, which are to be widened and repositioned, and the tracks relaid to an altered layout. It is hoped that the work will be completed in time for the Easter holidays. The new platforms are being built with concrete walls, with earth fillings in between, surfaced with paving slabs and tarmacadam. Platforms Nos. 12 and 13 will be widened from 28 ft. to 30 ft. and Nos. 14 and 15 from 17 ft. 9 in. to 25 ft. 9 in. To make room for the increased width of the new platforms the siding which was formerly between the lines serving platforms 13 and 14 has been converted into the new No. 13 platform line and the front of No. 13 platform moved over correspondingly. The new front of No. 12 platform has been similarly moved and a new platform line constructed so that the former platform No. 12 line will be relaid for use as a siding. To enable the widening of platforms 14 and 15 to be carried out, one of the sidings on the west side of No. 15 platform is to be removed and the steelwork of the adjacent building altered so that the supporting pillars can be removed. This will allow the new platform 15 line to be laid close to the base of the building and beneath its wider upper stories, which will be cantilevered over the line.

DUAL CURRENT UNIT FOR WELDING SUPPLIES.—The Industrial Products Department of Philips Electrical Limited has introduced the Philips Type 1308/2 dual current rectifier, designed to give an output of 40-240 amp. a.c. or 10-80 amp. d.c. In both ranges, the output is infinitely variable and a calibrated scale is fitted to indicate the welding current on either range. The type of current is selected by a changeover switch. When d.c. is required, the transformer output is fed to two rectifier valves. The use of valve-rectified d.c. ensures that the welding current is smooth and free from "flickering." Arc recovery time is extremely short. Oscillograms show that barely .002 sec. are required for recovery. Applications include the welding of light alloys, non-ferrous metals and light gauge sheet. Carbon arc welding can be carried out, while the wide a.c. range permits the use of the plant for general welding construction and fabrication, repair, and maintenance welding.

Parliamentary Notes

Winter Traffic Delays

Lord Teynham, in the House of Lords on February 9, drew attention to railway delays during the cold spell, and said that British railways compared unfavourably with those of North America in dealing with wintry conditions. Points were frozen year after year, and nothing seemed to be done. The Southern Region, however, had done well in keeping its electric trains running. He suggested that B.T.C. direct that flame guns be provided against frozen points and signals.

Lord Hawke (Lord in Waiting) said all suggestions made would be studied by the Minister of Transport. It would be quite uneconomic, in the widely varying weather conditions of this country, to provide equipment and labour on a scale adequate to deal everywhere with the exceptional conditions.

Duty on Diesel Oil

When Sir Herbert Williams (Croydon E.—C.) on February 11 drew the attention of the Chancellor of the Exchequer to the B.T.C. plans for diesel trains described in our February 12 issue, and to the fact that diesel oil used on railways was not dutiable, Mr. J. A. Boyd-Carpenter (Financial Secretary to the Treasury) replied that as heavy oils were made dutiable when used as road fuel because they then replaced dutiable light oils, and were not dutiable when used for other purposes, their use by British Railways without payment of duty was not an anomaly.

Sir Herbert Williams then asked why tax should be paid on the fuel of a passenger road vehicle when no tax was paid on the fuel of another vehicle, also carrying passengers, which was prejudicial to the use of the road.

Mr. Boyd-Carpenter said this was because for many years the duty on heavy diesel oil had been applied only when used on the roads, i.e., in direct competition in road use with petrol.

Post Office Underground Railway

Mr. L. D. Gammans (Assistant Postmaster General) on February 8 presented to the House of Commons the Post Office (Site & Railway) Bill, and it was formally read the first time. The object of the Bill is to enable the Postmaster General to acquire land and construct certain underground railway works in London. These are stated to be extensions of the existing Post Office tube.

Transport Charges Bill

Mr. Hugh Molson (Parliamentary Secretary to the Ministry of Transport) presented to the House of Commons on February 16 the Transport Charges (Miscellaneous Provisions) Bill, which was read the first time.

The bill is concerned mainly with undertakings not owned by the B.T.C. and gives effect to recommendations of the Thesiger Committee on the licensing of road passenger services. It transfers the fixing of fares on trams and trolleybuses from local authorities to the area licensing authorities, who already fix them for buses.

The Minister of Transport's jurisdiction over the fares of buses operated by municipal and other statutory road transport undertakings is abolished.

The bill has also provided an opportunity to deal with various matters left over from the Transport Act, 1953. A standard procedure is laid down for the revision of charges of independent dock and harbour authorities.

Minor railways and privately owned

canals are given equality of treatment with public enterprise in formulating their charges schemes. The Minister is given power to simplify the accounts and returns required of minor undertakings.

Staff & Labour Matters

London Transport Wage Award

At a meeting held last week of the London Transport Negotiating Committee consisting of representatives of the London Transport Executive and the three railway unions, provisional agreement was reached to apply an increase of 6 per cent to the rates of pay for London Transport salaried and railway conciliation staff in operation before December 6, 1953, subject to confirmation by the executive committees of the unions.

An informal discussion also took place on ways of increasing the efficiency of London Transport.

The cost to London Transport of the 6 per cent increase, which includes the 4s. a week increase granted to these staff as from December 6, 1953, is some £500,000 a year, the number of staff involved being 18,200.

Engineering Workers' Pay Claim

The report of the Court of Inquiry on the engineering and shipbuilding workers' wage dispute was expected at the end of this week.

In protest against the rejection of their pay claim the C.S.E.U. had called for a ban on overtime from January 18, but this was called off at the request of the Minister of Labour, Sir Walter Monckton, who set up the court with a view to ending the impasse reached between the unions and the employers.

The C.S.E.U. executive committee will meet immediately the report is issued to consider the court's findings.

Contracts & Tenders

An order for 25 14-ton tank wagons has been placed with the Cambrian Wagon & Engineering Co. Ltd. by the National Benzole Co Ltd.

Hurst, Nelson & Co. Ltd. has received an order for 30 oil tank wagons for the Sudan Railways.

Leyland Motors Limited has received orders from the associated bus undertaking of the Netherlands Railways for 14 Leyland Royal Tiger Coaches, similar to eight put in service last year.

Eighty sets of pneumo-cyclic gearboxes and diesel units of 125 h.p. to be used in Brossel Freres rear-engine 90-passenger buses for the Belgian National Light Railways (Vicinal) have been ordered from Leyland Motors Limited. This contract is in addition to that already in hand for the undertaking for 25 Brossel Freres rear-engine buses using Leyland 90-h.p. diesels and running units.

British Railways, Eastern Region, have placed the undermentioned contracts:—

Thomas Smith & Sons (Rodley) Ltd., Leeds: supply and delivery of two three-ton steam travelling cranes for Motive Power Department Wellerman Bros. Ltd., Sheffield, 3: renewal and extension of river walling and protective work at underbridges over River Rother between Beighton and Killamarsh

British Railways, North Eastern Region, have placed the following contracts:—

Brims & Co. Ltd., Newcastle-upon-Tyne, 1: repairs to retaining wall near Skinnerburn Road, Newcastle

The Dowson & Mason Gas Plant Co. Ltd., Manchester, 19: supply and delivery of two fuel oil storage tanks for lightweight trains, West Riding diesel scheme

The High Commissioner for India is inviting tenders for firebrick blocks for re-

generative coke ovens. See Official Notices on page 255.

The Special Register Information Service, Export Services Branch, Board of Trade, states that the United Kingdom Trade Commissioner at Delhi has reported that the Director-General of Supplies & Disposals, Government of India, is calling for tenders for:—

862 springs laminated 13 plated 4 in. \times $\frac{1}{2}$ in., 3 ft. 6 in. centre for four-wheel wagons

The closing date for the receipt of tenders is 10 a.m. on March 5. Tenders should be addressed to the Directorate General of Supplies & Disposals, Shahjahan Road, New Delhi. If there is insufficient time in which to obtain the documents from India, tenderers are advised to submit quotations by letter and, at the same time, ask for a set of the tender documents to be sent to them, which documents they should undertake to complete and return as soon as possible on the basis of the quotations made by letter.

A set of the tender documents including conditions of contract but not including drawings may be had on loan from the Export Services Branch, Lacon House, Theobalds Road, London, W.C.1.

The Director-General of Supplies & Disposals, Railway Stores Directorate, New Delhi, is inviting tenders for:—

(a) 12,000 axlebox bearings, 10 in. by 5 in. (b.g.), completely machined

200 axlebox bearings, 7 in. by $3\frac{3}{8}$ in. (Northern Railway), completely machined

450 axlebox bearings, 6 in. by $3\frac{3}{8}$ in.

300 axlebox bearings, 6 in. by $2\frac{3}{8}$ in.

90 axlebox bearings, 6 in. by 3 in., journals for L.S., d.b.r. wagons

(b) 925 guards, axle only, for, 7 in. by $3\frac{1}{2}$ in. journal for wagons (m.g.)

850 guards, axle only, for, 7 in. by 4 in. journal for wagons

Tenders are to be submitted to the Director-General of Supplies & Disposals, Shahjahan Road (Section SRI), New Delhi, quoting reference SRI/17199—D/1 for (a) and SRI/18917—D/1 for (b), and will be received up to 10 a.m. on March 12 for (a) and March 19 for (b).

If the date for the receipt of tenders does not allow sufficient time for tenderers to obtain tender forms from India, they may submit their quotation to India in their own letter form or by telegram, so long as all essential particulars are given and provided they simultaneously apply for tender forms and return them duly completed as quickly as possible on the basis of advance quotations already submitted. A copy of the tender form can be examined at the above address on application to the "CDN" Branch and the drawings can be seen at the offices of Hodges Bennett & Co., 59-60, Petty France, London, S.W.1, from whom copies may be obtained, if required, at a fixed price per sheet.

The Special Register Information Service, Export Services Branch, Board of Trade, states that the United Kingdom Trade Commissioner at Johannesburg reports that the Stores Department, South African Railways, is calling for tenders for:—

1,748 friction bolster springs, type A, suitable for fitting to wagons having bearing springs to Drawing No. S.75/8900, and having tare weight and loads as specified

Alternatively, 1,748 friction bolster springs (snubbers) of a make to be approved, suitable for fitting to wagons having bearing springs to

French Record-Breaking Locomotive



French National Railways Co-Co locomotive No. 7121 and three-coach test train after setting up a world speed record of 150 m.p.h. between Dijon and Beaune

Drawing No. S.75/8900. The load per spring nest, i.e., three helical springs and one snubber, will be 22,000 lb.

The drawing referred to above may be inspected at the office of the High Commissioner for the Union of South Africa, Trafalgar Square, London, W.C.2, or may be purchased from any S.A.R. Stores Superintendent, price 2s. 6d. per copy.

The closing date for the receipt of tenders is March 18.

Tenders must be enclosed in a sealed envelope which must have inscribed on the outside—"Tender No. B.7332: Friction Bolster Springs." The envelope must be addressed to the Chairman of the Tender Board, P.O. Box 7784, Johannesburg.

A copy of the tender documents, including specifications and conditions of contracts may be inspected in Room 801 at the Branch, Lacon House, Theobalds Road, W.C.1, until March 2, after which date it will be available for loan to United Kingdom firms.

The Director-General of Supplies & Disposals, New Delhi, is inviting tenders for the following:—

60 axlebox (cast steel), coupled wheels L. & T., "S.G.C. 2" and "S.G.S." classes

Pattern is available with Bhartia Electric Steel Co. Ltd., Calcutta, and should be obtained from them by the successful tenderer. Machine where names "F," drill and tap as shown in the drawing. Card no. must be stamped on each casting

Tenders are to be submitted to the Director-General of Industries & Supplies, Shahjahan Road (Section SRI), New Delhi, quoting reference SRI/17128—D/I, and will be received up to 10 a.m. on March 22.

If the date for the receipt of tenders does not allow sufficient time for tenderers to obtain tender forms from India, they may submit their quotation to India in their own letter form or by telegram, so long as all essential particulars are given and provided they simultaneously apply for tender forms and return them duly completed as quickly as possible on the basis of advance quotations already submitted. A copy of the tender form can be examined at the above address on application to the "CDN" Branch and the drawings can be seen at the offices of Hodges, Bennett & Co., 59-60, Petty France, London, S.W.1, from whom copies may be obtained, if required, at a fixed price per sheet.

The Special Register Information Service, Board of Trade, Export Services Branch, states that the United Kingdom Senior Trade Commissioner at Karachi has reported that the Director-General (Railways), Ministry of Communications, Government of Pakistan, is calling for tenders for:—

94 broad gauge (5 ft. 6 in.) covered cattle wagons, "CMR" type (dismantled), complete with underframe wheels and axles, axleboxes, vacuum brake fittings

The closing date for the receipt of tenders is March 30. Tender documents, including instructions to tenderers, tender form, schedule of requirements, general and particular specifications and conditions of contract may be obtained from the office of the Director-General (Railways), Railway Division, Ministry of Communications, Room No. 342, 2nd Floor, Multi-Storeyed Building, Adj. Assembly Building, Kingsway, Karachi, on

payment of Rs.100, which amount will not be refunded under any circumstances. Tenders will be accepted only on the specified tender form and schedule.

Tenders in sealed covers superscribed "Tender for B.G. (5 ft. 6 in.) covered cattle four-wheel wagons, 'CMR' type," must reach the office of the Director-General (Railways), Railway Division, Ministry of Communications, Room 302, 2nd Floor, Multi-Storeyed Building, Adj. Assembly Building, Kingsway, Karachi, by noon on March 30 and will be opened there at 11 a.m. on March 31 in the presence of tenderers who may desire to be present.

A copy of the tender notice may be inspected in Room 801 at the Export Services Branch, Lacon House, Theobalds Road, W.C.1. A copy of the specifications is expected to be available for inspection and loan at a later date.

The Special Register Information Service, Export Services Branch, Board of Trade, states that the United Kingdom Trade Commissioner at Johannesburg reports that the Stores Department, South African Railways, is calling for tenders for:—

1,200 malleable cast iron vacuum hose couplings, $\frac{3}{4}$ in. dia.

Alternatively

1,200 aluminium alloy vacuum hose couplings, $\frac{3}{4}$ in. dia.

70,000 malleable cast iron vacuum hose couplings, 2 in. dia.

Alternatively

70,000 aluminium alloy vacuum hose couplings, 2 in. dia.

The closing date for the receipt of tenders is April 8. Tenders, on the prescribed form, must be submitted in a sealed envelope, inscribed on the outside "Tender No. B.7323: for Vacuum Brake Gear Metal Parts", and addressed to the Chairman of the Tender Board, P.O. Box 7784, Johannesburg.

A copy of the tender documents, including specifications and conditions of contract, may be inspected in Room 801 at the Branch, Lacon House, Theobalds Road, W.C.1, until March 6, after which date it will be available for loan to United Kingdom firms in order of application.

The Director-General of Supplies & Disposals, New Delhi, is inviting tenders for:—

(a) 480 brake shaft cylinder arms (m.g.)

(b) 1,500 axlebox key plate, 10 in. by $5\frac{1}{2}$ in. and 10 in. by 5 in. journal

Delivery required: 750 by January 2, 1955; 750 by July 2, 1955

(c) 6,886 carrier cylinder brakes, I.R.S. type
Delivery: April 30, 1954

(d) 996 buffer plunger with spindle, nuts and cotters, 13 in. "A" type
Delivery: 498 by May 31, 1954; 498 by February 28, 1955

(e) 4,200 buffer spindles (b.g.), various
Delivery: 2,100 by May 31, 1954; 2,100 by March 31, 1955

(f) 61,490 buffer spring parting plates (b.g.) (steel, class II, galvd.), for use with I.R. buffer springs

6,000 dividing plates (steel, Class II, galvd.), for continuous drawbar rubber spring
4,125 dividing plates (steel, class II, galvd.), for use with I.R.S. spring

Delivery in two equal monthly instalments by October 1, 1954, and April 1, 1955

(g) 1,205 boxes, axle, body only (C.S.), 7 in. by $3\frac{1}{2}$ in. jn. for centre wheel, six-wheel wagons (machined)

6,090 boxes, axle, body only (C.S.), 7 in. by $3\frac{1}{2}$ in. jn. (C. & W.) (machined)

2,915 boxes, axle, body only (C.S.), 7 in. by 4 in. jn. (C. & W.) (machined)

All items should conform to I.R.S. Specification No. R-7/49. Delivery required: 625 of item 1, 1,840 of item 2, and 1,038 of item 3 by June, 1954, and balance by December, 1954

(h) 12,400 plates, face, axlebox, 7 in. by $3\frac{1}{2}$ in., for C. & W.

7,950 plates, face, for axlebox, 7 in. by 4 in., for C. & W.

2,630 plates, face, axlebox, 7 in. by 4 in. (m.g.)

Delivery required: 7,150 of item 1 and 4,462 of item 2 by June, 1954, and balance by December, 1954

(i) 125 boxes, axle, 9 in. by $4\frac{1}{2}$ in. (m.g.)

340 boxes, axle, 9 in. by $4\frac{1}{2}$ in. (m.g.)

575 boxes, axle, 7 in. by 4 in. (I.R.C.A.)

450 boxes, axle, 7 in. by 4 in. (m.g.)

Stores should conform to I.R.S. Specification No. R-7/49 (steel casting to I.R.S.S. M-2/48 class A, Grade II)

Delivery required: 215 of item 2, 266 of item 3, and 214 of item 4 by June, 1954, and balance by December, 1954

Tenders are to be submitted to the Director-General, Industries & Supplies, Shahjahan Road (Section SRI), New Delhi, quoting references as follows:—

(a) SRI/17000—D/II; (b) SRI/16067—E/I;

(c) SRI/16999—D/II; (d) SRI/17255—D/III;

(e) SRI/17195—D/III; (f) SRI/17286—D/III;

(g) SRI/18911—D/I; (h) SRI/18913—D/I;

(i) SRI/18912—D/I.

They will be received up to 10 a.m. on:—

(a) March 1; (b) March 8; (c) March 15;

(d) March 23; (e) March 24; (f) March 24;

(g) March 18; (h) March 12; (i) March 12

If the date for the receipt of tenders does not allow sufficient time for tenderers to obtain tender forms from India, they may submit their quotation to India in their own letter form or by telegram so long as all essential particulars are given and provided they simultaneously apply for tender forms and return them duly completed as quickly as possible on the basis of advance quotations already submitted.

A copy of the tender form can be examined at the above address on application to the "CDN" Branch and the drawing can be seen at the offices of Hodges, Bennett & Co., 59-60, Petty France, London, S.W.1, from whom copies may be obtained if required at a fixed price per sheet.

The Special Register Information Service, Board of Trade, Export Services Branch, states that the British Embassy at Santiago has reported that the Chilean State Railways are calling for tenders of spares for locomotives, coaches and wagons. The closing date for the receipt of tenders is April 2.

A copy of the tender documents (in Spanish) including specifications may be inspected in Room 801 at the Export Services Branch, Lacon House, Theobalds Road, London, W.C.1, until February 27, after which date it will be available for loan to United Kingdom firms. A second copy is available for immediate loan in order of application.

Notes and News

Assistant Engineer Required.—Applications are invited for the post of assistant engineer required by the Government of Iraq State Railways for one tour of three years. See Official Notices on page 255.

Vacancies for Clerks, Grade II.—Clerks, Grade II are required by the East African Railways & Harbours Administration, Mechanical Department, for tour of 40 to 48 months with prospect of permanency. See Official Notices on page 255.

Institution of Locomotive Engineers: Annual Luncheon.—We regret that in our Forthcoming Meetings column for February 19, the Institution of Locomotive Engineers Annual Luncheon was shown as to be held on Friday, March 5, at Grosvenor House, Park Lane, W.1, whereas it should have been Dorchester Hotel, Park Lane, W.1, on that date.

Institution of Locomotive Engineers.—On Wednesday, March 17, the Institution of Locomotive Engineers will hold its Annual General Meeting at the Institution of Mechanical Engineers, Storey's Gate, St. James's Park, London, S.W.1, at 5.30 p.m. This will be followed by a paper entitled "Experiences with British Railways Standard Locomotives," to be read by Mr. E. S. Cox, Vice-President of the Institution.

Recruiting Campaign for R.E. Transportation and Movements.—The recruiting campaign for the Army Emergency Reserve, Royal Engineers (Transportation & Movement Control) referred to in our issue of November 13, 1953, has included a recruiting tour to transport installations. This took place last month, with visits to Acton Works, London Transport; Willesden, London Midland, and Old Oak Common, Western Region, Locomotive Sheds; and Nine Elms Locomotive and Goods Depots, Southern Region. The tour is reported to have been very successful and to have aroused considerable enthusiasm. Amongst the arguments advanced were: "You know about railways: why not come and teach others (such as national servicemen)?" and the fact that the 15-day annual camp does not count as a holiday for railwaymen whilst the extra earnings of a reservist enable him to take his family for an ordinary holiday as well. The various duties, obligations, and rewards of service in the A.E.R. also were explained.

able him to take his family for an ordinary holiday as well. The various duties, obligations, and rewards of service in the A.E.R. also were explained.

Heaviest British Railways Coal Traffic Since Christmas.—British Railways carried 3,303,970 tons of deep-mine and opencast coal last week, the heaviest since Christmas. The weekend figure, up to 6 a.m. on February 22, was 411,750 tons. During the week ended February 13, 221,779 tons of iron and steel from the principal steel works and 310,700 tons of iron ore were conveyed.

Diesel-Electric Locomotives for New South Wales.—The mechanical parts of the ten 1,000-h.p. diesel-electric locomotives being supplied by the British Thomson-Houston Co. Ltd. to the New South Wales Government Railways, referred to in the article on page 190 of our February 12 issue, were supplied by the Metropolitan-Cammell Carriage & Wagon Co. Ltd. and not as stated in error in the article.

British Railways, Western Region, London Lecture & Debating Society: Prize Essays. On Thursday, March 25, in the Headquarters Staff Dining Club, Bishop's Bridge Road, Paddington, W.2, at 5.45 p.m., the Western Region, London Lecture & Debating Society will hold its annual general meeting and reading and discussion of prize essays, which this year will be on either of the following subjects:—"A forecast of the position of British Railways in the field of transport in (a) ten years time, and (b) in the year 2,000," or "Discuss the Transport Act, 1953, and its probable effect on the future efficiency and solvency of British Railways."

English Electric Co. Ltd. Results.—A final dividend of 6½ per cent, or 1s. 4d. per £1 stock unit, for the year ended December 26, 1953, is recommended on the £10,616,193 ordinary capital of the English Electric Co. Ltd. The proposed payment will absorb £389,260, against £278,675 by the 10 per cent final dividend for the previous year on the £5,308,097 existing before the "rights" and free scrip issues. Interim dividends of 5 per cent were paid in both years on the smaller capital. Group profits, after all charges other than taxation, rose by £420,886 to £4,779,920, and the net balance by £104,379 to £1,553,897, after a higher provision for taxation.

tion, rose by £420,886 to £4,779,920, and the net balance by £104,379 to £1,553,897, after a higher provision for taxation.

Mansion House Association on Transport: Annual Luncheon.—The annual luncheon of the Mansion House Association on Transport will be held on Friday, March 26, at the Trocadero Restaurant, Piccadilly, London, W.1, at 12.15 for 12.45 p.m.

British Railways L.M.R. London Dramatic Society.—On Monday and Tuesday, March 22 and 23, the British Railways L.M.R. London Dramatic Society will present "Madam Tic Tac" at the Fortune Theatre, Drury Lane, W.C.2, at 7.30 p.m. Tickets can be obtained from Miss Bettie Smith, Room 400, Euston House, N.W.1.

Road Accidents, December and January.—Casualties on the roads of Great Britain in January reached a total of 14,582, a slight decrease compared with January, 1953. The final figures for December, 1953, show that casualties totalled 21,222, including 602 killed, 5,490 seriously and 15,130 slightly injured.

Railway Benevolent Institution.—At a meeting on February 17 the board of the Institution granted annuities to four widows and six members involving an additional liability of £166 10s. per annum. Forty-one gratuities also were granted amounting to £445, to meet cases of immediate necessity. Grants made from the Casualty Fund during the month of January amounted to £892 17s.

Disposal of Surplus Crockery.—Sir Brian Robertson, Chairman of the British Transport Commission, addressed a letter earlier this week to the Minister of Transport & Civil Aviation, Mr. Alan Lennox-Boyd, with reference to statements in the Press on the disposal of surplus crockery and utensils at Waterloo Station. He said he was satisfied that there was no question of any dishonesty on the part of anyone; that no articles had been destroyed or sold merely because they bore the mark of the former Southern Railway or which could properly have been put to use, sold, or given away. In view of the public interest aroused, he asked the Minister to arrange for an inquiry by one or more independent persons. Mr. Lennox-Boyd, with the agreement of Sir Brian Robertson, invited Lieut.-General Sir Humfrey Gale, Colonel Commandant of the Army Catering Corps, to inquire into the matter. Sir Humfrey Gale has agreed to do so, and the inquiry will begin at once.

I.L.O. Inland Transport Committee.—The fifth session of the Inland Transport Committee of the I.L.O. opened in Geneva on February 15 under the presidency of Mr. Calderon Puig, of Mexico, appointed by the Governing Body. In his opening speech he said the I.L.O. had this year completed 35 years of its existence. The universal nature of the organisation was reflected in the Inland Transport Committee, which, in its fifth session, was composed of delegates of the Governments and employers and workers of 32 countries. The inland transport industry was one of the basic industries in the natural economy of each country as well as internationally. On the nomination of the Employers Group, Mr. Frank Gilbert, of the United Kingdom delegation, was elected Vice-President of the Committee and Vice-Chairman of the Steering Committee. The Worker Group appointed as their Chairman, Mr. J. S. Campbell, also a U.K. delegate. The Inland Transport Committee



Part of the R.E., A.E.R. display, a model of a dock installation, at Acton Works, London Transport, on the first day of the recruiting campaign

OFFICIAL NOTICES

The engagement of persons answering Situations Vacant advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

ASSISTANT ENGINEER required by the **GOVERNMENT OF IRAQ STATE RAILWAYS** for one tour of three years. Salary, etc., equivalent to between £135 and £164 per month according to experience and qualifications. Provident Fund. Free passages for officer only. Leave on full salary. Candidates should be A.M.I.C.E. or hold an Engineering Degree recognised as granting exemption from Section A and B of the examination. They must have had experience in general construction work, preferably including Railway Layouts and ancillary work. Write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2B/30088/RA.

GUAQUI LA PAZ RAILWAY.—Assistant accountant. Qualifications: Man who has passed intermediate examination of recognised accountancy body preferred. Knowledge of railway accounts an advantage. Preferably single between 28/35 years of age. **CENTRAL RAILWAY.**—Traffic Learner for training as an official. Single. Between 21 and 25 years of age. Good general education with transportation experience either practical or theoretical. Knowledge of Spanish language preferable but not essential. Apply **SECRETARY OF THE PERUVIAN CORPORATION**, 144, Leadenhall Street, London, E.C.3.

THE HIGH COMMISSIONER FOR INDIA invites tenders for the supply of 32,500 Fire-brick Blocks, Quality Segar Cone—required for the pillar of the regenerative coke ovens at the Giridih Collieries (Simon Carves).

Forms of tender may be obtained from the Director General, India Store Department, 32/44 Edgware Road, London, W.2, on or after February 26, 1954 at a fee of 10s. which is not returnable. Cheques to be made payable to "High Commissioner for India." Tenders are to be delivered by 2 p.m. on Friday, March 26, 1954. Please quote reference No. HN3117/52.

MILD Steel Plates, below works price. Large tonnage available. 5/16 in. thick. Immediate delivery.—**PIKE BROS. (IRON & STEEL) LTD.**, Colnbrook, Bucks. Phone 175.

CLERKS GRADE II required by **EAST AFRICAN RAILWAYS AND HARBOURS** Administration Mechanical Department for tour of 40/48 months with prospect of permanency. Commencing salary, etc., according to age in scale £702-£823 a year. Outfit allowance £30. Superannuation Fund. Free housing or allowance in lieu. Free passages. Liberal leave on full salary. Candidates must either have had experience in the Motive Power Department of British Railways or have had experience of railway staff work. Applicants now serving with British Railways are eligible for secondment and should apply through their local officers. Write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M3B/34176/RA.

RAILWAY Draughtsman-Surveyor required by large firm railway contractors, applicants must have ability to carry out site surveys, plot same in layout form to good working scale (detailing for manufacture of turnouts, etc., done by other draughtsmen); capable of full use of theodolite and level; duties to include site supervision of contract in progress; age 25-30 years; man with British Standard Specification experience preferred; conditions of employment to include provision of car, all travelling and general expenses; five-day week on rota system; comprehensive superannuation scheme, etc. Write in first instance, stating age, experience and salary required, to Box 93, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

DUE to plant expansion important wagon builder desires Sales Engineer for Belgian Plant. Work to consist of estimating costs both material and labour, preparing detailed technical specifications, writing quotations, and general sales work both written and by personal contact. Spanish and French languages desirable. Technical training essential. Preference given to man willing to travel. Excellent future for man with right combinations of sales and technical abilities. Minimum age 25, maximum depending on experience but preferably not over 45. Excellent salary depending on qualifications. Reply Box 89, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25s. per volume, post free. Send your copies to the **SUBSCRIPTION DEPARTMENT**, Tothill Press Limited, 33, Tothill Street, London, S.W.1.

tee set up sub-committees to deal with: (a) conditions of employment in road transport; (b) welfare facilities for dock workers; and (c) study of the effect given to conclusions of the previous sessions. The committee concludes its proceedings tomorrow (February 27).

"Bless the Bride."—On February 18, 19 and 20, the London Transport Musical & Dramatic Society presented the light opera "Bless the Bride" at the Scala Theatre, London, W.1. The principal characters were excellently portrayed by Miss Joan Partington as Lucy Veracity Willow, and Mr. Stephen Blake as Pierre Fontaine; and Mr. Ray Ravenswood was most amusing as the Honourable Thomas Trout, Lucy's jilted lover. Miss Partington is a gifted young actress and possesses a really beautiful voice which was heard to advantage in the many tuneful songs in "Bless the Bride." Good performances too were given by Mr. Jack Beken and Miss Joyce Dean as Lucy's father and mother respectively, and Miss Blanche Pellett made a charming Harriett Willow (Grandmamma). The chorus work was excellent, and Mr. John Pinches, the musical director, is to be congratulated on the rendering by the orchestra of the charming music by Vivian Ellis. The opera was produced under the direction of Eva Callebaut.

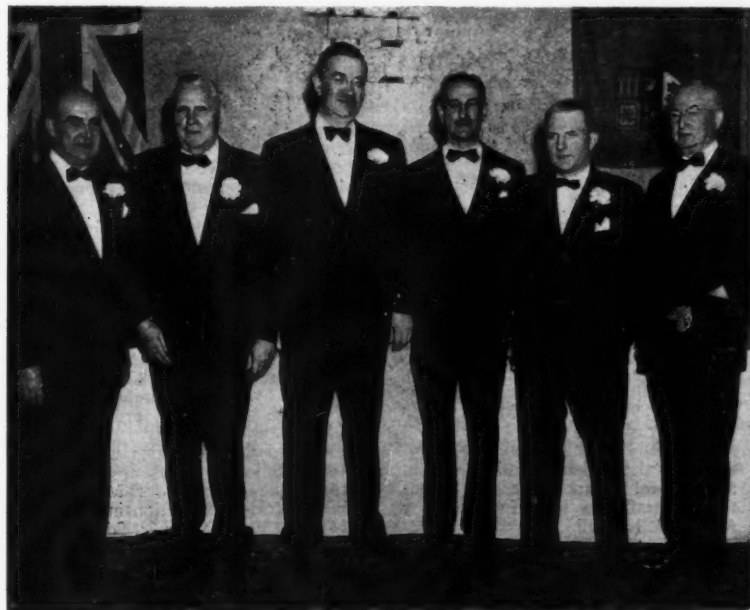
Intercontinental Transportation Club Gala.—The fifth annual gala "La Nuit de la Locomotive '54'," of the Intercontinental Transportation Club, Paris, will be held at the Aero Club, Rue Galilee, on March 12, with dancing from 10 p.m. to dawn, whilst the attractions will include a tombola. The price of tickets is francs 700 per person, half price for young people. Refreshments will be obtainable throughout the evening, and supper will be served from 12.30 a.m. at a charge of francs 1,200, including service and a quarter-bottle of wine. The Minister of Reconstruction, Monsieur Maurice Lemaire, former Director General of the French National Railways, has signified his intention of being present. In conjunction with the gala, an exhibition of railway posters is being organised, with the locomotive (steam, electric, or diesel) as the theme; these will

be the subject of a poster judging competition. Tickets for the gala are obtainable from the Intercontinental Transportation Club, 11, Rue de Milan, Paris 11e, by personal application or by post.

North American Railway Officers at Canadian Railway Club Dinner.—The accompanying illustration shows a group of senior Canadian and United States senior railway officers at the Sheraton-Mount Royal Hotel, in Montreal, on the occasion of the 46th annual dinner of the Canadian Railway Club, which was attended by more than 1,900 persons. They are, from left to right, Messrs. M. J. Alger, Vice-President, New York Central Railroad; J. H. Nuelle, President, Delaware &

Hudson Railroad; Donald Gordon, Chairman & President, Canadian National Railways; Carl Niderost, President, Canadian Railway Club, and Assistant Secretary, Canadian Pacific Railway; N. R. Crump, Vice-President, Canadian Pacific Railway; and T. G. Sughrue, President, Boston & Maine Railroad.

Presentation of Meritorious First Aid Awards at Paddington.—The presentation of three British Transport Commission Class 1 awards (clock with an appropriate engraved silver plate and framed certificate), and 15 Class 2 awards (framed certificate) to staff of British Railways, Western Region, was recently made by Mr. K. W. C. Grand, Chief Regional Manager,



Canadian and United States railway officers at the 46th annual dinner of the Canadian Railway Club in Montreal

who was supported by a number of Chief Officers. A vote of thanks to Mr. Grand was proposed by Mr. M. G. R. Smith, Civil Engineer, Western Region.

Railway Materials Handbook.—The price of the "Railway Materials Handbook" published by the United Steel Companies Limited, of which a brief notice appeared on page 177 of our February 12 issue, is one guinea, as shown on the inside title page.

Forthcoming Meetings

- March 1 (*Mon.*).—Institute of Transport, East Anglia Group, at the Assembly Rooms, Norwich, at 5.30 p.m. Visit of Mr. C. K. Bird, Vice-President.
- March 2 (*Tue.*).—Institute of Transport, Gloucester & Cheltenham Group, at the Midland & Royal Hotel, at 7 p.m. Paper on "Railway Transport—Terminal Facilities," by Mr. H. H. Starr.
- March 2 (*Tue.*).—Institute of Transport, Metropolitan Graduate & Student Society, at 80, Portland Place, London, W.1, at 6 p.m. Debate on the Transport Act, 1953.
- March 3 (*Wed.*).—Institution of Railway Signal Engineers, at the Railway Institute, Derby, at 5.45 p.m. Paper on "Testing of mechanically interlocked lever frames," by Mr. H. G. E. Taylor.
- March 3 (*Wed.*).—British Railways, Southern Region, Lecture & Debating Society. Afternoon visit to Ford Motor Works, Dagenham.
- March 3 (*Wed.*).—British Railways, Southern Region, Lecture & Debating Society, in the Chapter House, St. Thomas' Street, S.E.1, at 5.45 for 6 p.m. Paper on "The Author and the Artist, their contribution to publicity," illustrated by lantern slides, by Mr. F. D. Y. Faulkner, Public Relations & Publicity Officer, British Railways, Southern Region.
- March 4 (*Thu.*).—British Railways, North Eastern Region, Hull District Station-masters' Discussion Group. Open Meeting at the Paragon Institute, at 7.15 p.m. Paper on "Automatic train control and other safety measures," by Mr. L. W. Hattey, Assistant to Chief of Operating Services, B.T.C.
- March 4 (*Thu.*).—Institute of Transport, Northampton Group, at Saunt's Pump Hotel, Market Harborough, at 7 p.m. Joint meeting with Leicester Group. Paper by Mr. G. E. Wellbond, District Traffic Officer (N.E. Division), British Transport Commission, Docks & Inland Waterways.
- March 5 (*Fri.*).—Institution of Locomotive Engineers, at the Dorchester Hotel, Park Lane, London, W.1, at 12 noon for 1 p.m. Annual luncheon.
- March 5 (*Fri.*).—The Railway Club, at 57, Fetter Lane, London, E.C.4, at 7 p.m. Paper entitled "The wars of the carriers 1896-1954," by Mr. Kenneth Brown, President.
- March 8 (*Mon.*).—Institute of Transport, at 80, Portland Place, London, W.1, at 5.45 for 6.15 p.m. Paper on "Continental traffic—a look forward," by Mr. L. H. K. Neil.
- March 8 (*Mon.*).—Historical Model Railway Society, at the Headquarters of the Stephenson Locomotive Society, 32, Russell Road, London, W.14, at 7 p.m. Paper on "The London & South Western Railway," by Mr. C. Hamilton Ellis.

March 9 (*Tue.*).—South Wales & Monmouthshire Railways & Docks Lecture & Debating Society, in the Angel Hotel, Westgate Street, Cardiff, at 6.30 p.m. Paper on "The operation of district controls," by Mr. L. W. Ibbotson, assistant to Operating Superintendent, British Railways, Western Region, Paddington, W.2.

March 10 (*Wed.*).—Railway Students' Association, at the London School of Economics & Political Science, Houghton Street, Aldwych, London, W.C.2, at 6.15 p.m. Paper on "Operating economics in practice on the railways," by Mr. E. W. Rostern, Operating Superintendent, British Railways, Eastern & North Eastern Regions.

March 11 (*Thu.*).—British Railways, Western Region, London Lecture & Debating Society, in the Headquarters Staff Dining Club, Bishop's Bridge Road, Paddington, W.2, at 5.45 p.m. Paper on "Freight rolling stock arrangements on the British Railways," by

Mr. A. J. H. Turner, British Transport Commission.

March 11 (*Thu.*).—Institution of Locomotive Engineers. Visit to Cambridge University engineering department and tour of the Colleges. Party assemble at Liverpool Street station and travel by special train leaving at 9.47 a.m.

March 11 (*Thu.*).—Institution of Railway Signal Engineers, at the Dining Club, Hunt's Bank, Manchester, at 6.30 p.m. Paper on "Recent Signalling Developments on British Railways," by Mr. J. F. Tyler, British Railways, Western Region.

March 13 (*Sat.*).—Permanent Way Institution, East Anglia Section, at Cambridge at 2.15 p.m. Paper on "Fastenings," by Mr. G. W. Baker.

March 13 (*Sat.*).—Railway Students' Association. Visit to British Railways, Southern Region, Three Bridges Control Room in the morning, followed by an inspection of the Redhill-Earlswood Junctions in the afternoon.

Railway Stock Market

News of the impending £30,000,000 loan stock issue by Imperial Chemical Industries and reports of further big issues planned by other leading companies, have tended to restrict business in stock markets. Instead of investing in existing securities there is a disposition to await the new issues. Generally, however, markets have been firmer, and in the industrial sections the recent reaction has been followed by better demand. Sentiment was helped by a number of further dividend increases, among which was the increase from 13 per cent to 15 per cent foreshadowed by I.C.I. Many more companies could also pay out a little more to shareholders, and are likely to do so, particularly if the Budget brings a reduction in income tax.

Some shares have reached levels which may be said to discount higher dividend prospects rather fully. On the other hand, there are many shares which could very well pay more and which seem relatively undervalued. In view of the latest news of supplementary estimates, the financial year can be expected to finish with only a very modest surplus. No large scale tax reductions can therefore be anticipated. Probably the best that can be looked for is a cut of 6d. in the standard rate of income tax.

Foreign rails have been extremely quiet, because, on present indications, they offer little scope for early capital appreciation.

Manila Railway debentures and shares have been attracting a little quiet buying because of scope for appreciation in value in the future when there is a reasonable settlement in respect of the company's big holding of Manila Railroad bonds. Manila Railway "A" debentures changed hands around 80 and the "B" debentures around 70, while the preference shares were 8s. 3d. and the 1s. ordinary shares 3s. 6d.

San Paulo 6s. 8d. shares were marked up to 6s. following news of the meeting called by the directors for March 16 to consider a further reduction in the capital by £400,000 by repaying 2s. 8d. per share.

Antofagasta ordinary and preference stocks changed hands around 8½ and 40½ respectively. There was little business in United of Havana issues, the second income stock being 42½ and the consolidated stock 6½. Mexican Central "A" debentures were wanted and strengthened

to 83½. On the other hand, there was further selling of White Pass common shares which receded to \$26½ with the convertible debentures at \$95, the new capital news having continued to affect sentiment.

Nitrate Rails shares changed hands around 19s. 9d. Taltal shares have marked 14s. 3d. Guayaquil & Quito first bonds have shown business around £48½. Costa Rica ordinary stock has marked 8½ and the 6½ per cent first bonds up to 62. Dorado ordinary stock was 61½ and the 6 per cent first debentures 91. In other directions Brazil Rail bonds marked 6½.

Canadian Pacifics were \$44, the 4 per cent preference stock £67 and the 4 per cent debentures £88½.

Midland of Western Australia marked 21 and Nyasaland 3½ per cent. debentures 79½. Among Indian stocks, Barsi were 124½ and remained firmly held in the belief that the total payout is likely to be well in excess of the current price of the stock.

Road transport shares remained firmly held because of their good investment merits and market hopes of higher dividend prospects. Southdown were 29s., Lancashire Transport 48s. 9d. and West Riding 27s. British Electric Traction 5s. "A" deferred units reflected a little profit-taking and have eased to 42s. 3d. at the time of writing, though the market is continuing to talk confidently of an increase in the dividend from 35 per cent to 40 per cent.

Engineering and kindred shares displayed rather more activity, with Vickers at 50s. 4½d., Guest Keen 50s. and Tube Investments 65s. 6d. R. A. Lister were higher at 36s. 6d. following the raising of the dividend from 9 per cent to 12 per cent. United Steel were better at 23s. 9d. The prevailing view is that the next issue of denationalised steel shares is unlikely to be made until after the Budget.

The shares of locomotive builders and engineers have been generally firm, with Beyer Peacock at 33s. 6d., the 7 per cent yield attracting buyers, while Charles Roberts 5s. shares were 19s. 3d. and Birmingham Carriage 30s. 9d. At Glasgow, Hurst Nelson were 42s., North British Locomotive have changed hands around 14s. 3d., Gloucester Wagon 10s. shares were 17s. 3d. and Vulcan Foundry 23s. Wagon Repairs 5s. shares were 12s. 1½d. and G.D. Peters 5s. shares 25s.